LBT-VF3

SERVICE MANUAL
REVISED

E Model

This system is composed of follwing model.
As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENT MODEL NAME FOR THESE SYSTEM

AMPLIFIER	TA-VF1
TUNER, CD PLAYER	HCD-VF1
CASSETTE DECK	TC-VF1
SURROUND PROCESSOR	SDP-VF1
SPEAKER SYSTEM	SS-VF3

SPECIFICATIONS

Power requirement	220-230 V AC, 50/60 Hz (South-east Asian model) 120 V AC, 50/60 Hz (Latin American model)

Supplied accessories
Remote commander (1) (RM-S1FE)
Batteries Sony SUM-3 (NS) (3)
FM wire antenna (1)
AM loop antenna (1)
System control cord (3)
Speaker cord (2)
Felt cushion (8)

Design and specifications are subject to change without notice.

PARTS LIST

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS * * * * * * * * * * * * * * * * * *	
	1-501-374-11	ANTENNA, LOOP	
	1-690-353-11	CORD (WITH CONNECTOR) 13P	
	1-690-727-11	CORD (SPEAKER)	
	1-693-134-11	REMOTE COMMANDER (RM-S1FE)	
	2-352-555-01	CUSHION (LBT-VF3)	
	3-754-418-61	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, CHINESE)	
	4-944-032-11	COVER, BATTERY	
	4-944-033-11	COVER, ROTARY	
	4-944-034-11	COVER, SLIDE	
*	4-952-535-01	INDIVIDUAL CARTON	
*	4-948-202-01	CUSHION (SDP-VF1/HCD-VF1)	
*	4-948-201-01	CUSHION (TA-VF1/TC-VF1)	

STEREO COMPONENT SYSTEM

SONY®

English
92K0417-1
Printed in Japan
© 1992. 11

9-956-758-12

Sony Corporation
Audio Group

Published by Audio Corporate Planning Group

TA-VF1

SERVICE MANUAL

AEP Model
E Model

TA-VF1 (E Model) is Stereo Amplifier in LBT-VF3.

SPECIFICATIONS

Continuous RMS power output	65 W + 65 W (6 ohms, at 1 kHz, 5%THD)
Peak music power output	500 W

INPUT	Jack type	Sensitivity	Impedance
PHONO	Phono	3.3 mV	47 kohms
DAT	Phono	245 mV	47 kohms
AUX	Phono	245 mV	47 kohms

OUTPUT	Jack type	Sensitivity	Impedance
DAT	Phono	200 mV	2 kohms
CORDLESS SYSTEM	Phone	2.00 V	4.7 kohms
SPEAKERS	Phono	Accepts speaker of 6 to 16 ohms	
HEADPHONES	Stereophone	Accepts headphones of 8 ohms or more	

Frequency response	10 Hz to 50 kHz $^{+0}_{-3}$ dB
Power requirements	220-230 V AC, 50/60 Hz (South-east Asian, AEP, German model) 120 V AC, 50/60 Hz (Latin American model)
Power consumption	110 W
AC outlet	1 unswitched, 100 W max.
Weight	Approx. 5.9 kg
Dimensions	Approx. 355 × 98.5 × 314 mm (w/h/d, including projections)

使用時は添付資料も参照のこと
Refer to the additional documents.

STEREO AMPLIFIER

SONY®

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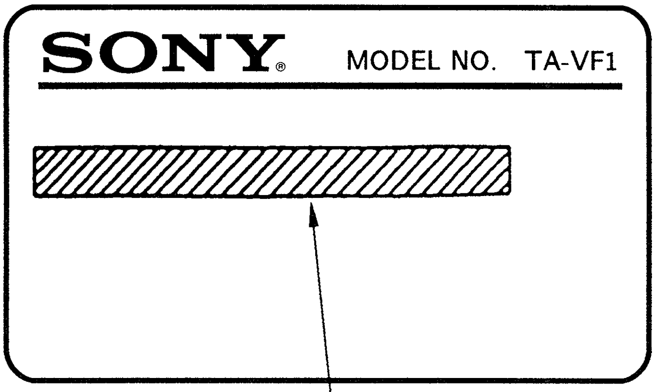
MODEL IDENTIFICATION

- Specification Label -



AEP Model : AC 220 - 230V ~ 50/60Hz
E(120V) Model : AC 120V ~ 110W 50/60Hz
E(220-230V) Model : AC 220 - 230V ~110W 50/60Hz

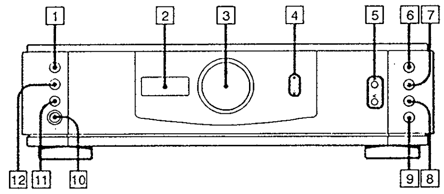
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location of Controls

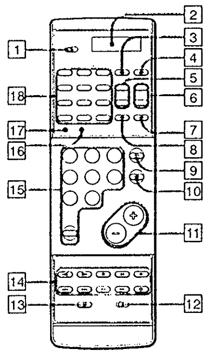
E 

Amplifier (TA-VF1) E

1. POWER button (18)
2. Display
3. VOLUME control (20)
4. CORDLESS SYSTEM indicators (84)
5. > and < buttons (20, 22, 40, 128)
6. BALANCE button and indicator (20)
7. TREBLE button and indicator (20)
8. BASS button and indicator (20)
9. BASS SYNTHESIZER button and indicator (22)
10. HEADPHONES jack
11. Remote sensor
12. SOURCE DIRECT button
    When this button is pressed to ON, the source signal is directly output to the speakers without going through the tone control of the amplifier, the BASS SYNTHESIZER circuitry and the surround circuitry of the digital surround processor. Thus, you can enjoy more pure sound.
    In surround sound
    - The setting of this button (ON/OFF) does not affect the rear sound.
    - The sound output from the front speakers is not surround sound.

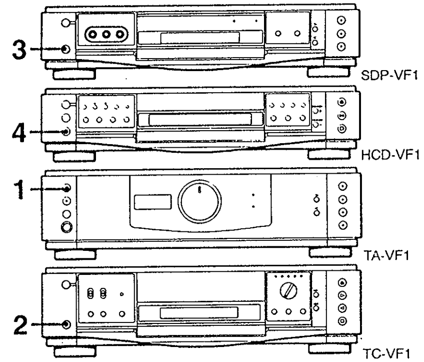
    To reproduce the Dolby surround sound effectively, set this button to OFF.

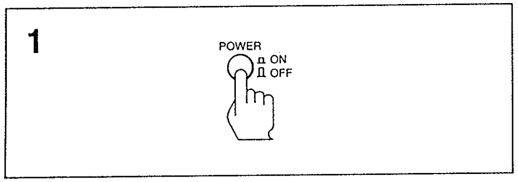
Location of Controls

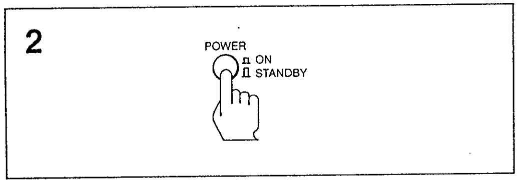
J 

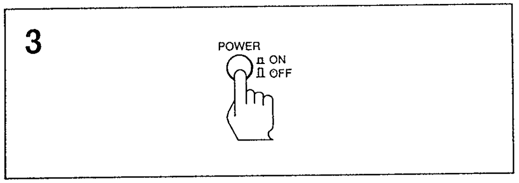
Remote Commander (RM-S1FE) J

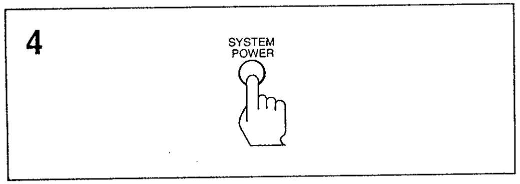
1. KEY MODE switch
2. Display
3. DISPLAY button ~~(30)~~(56)
4. SHIFT/TV/VTR button (24)
5. CHANNEL +/– buttons (24, 26, 28, 30)
6. TV VOLUME +/– buttons (86, 88)
7. SLEEP button (58)
8. CORDLESS SYSTEM button (84)
9. SYSTEM POWER button (18, 62)
10. VIDEO POWER button (86, 88)
11. VOLUME +/– buttons (20)
12. FUNCTION CODE switch (10)
13. BASS SYNTHESIZER button (22)
14. Operation button for the CD player, cassette deck, etc.
15. FUCTION buttons
16. RESET button (92)
17. MAKES button (92, 94)
18. Numeric and AMP/SURROUND CONTROL buttons











Turning on the Power

Turn on the power after completing all connections.

1 **Turn on the amplifier, and always leave the POWER switch depressed.**

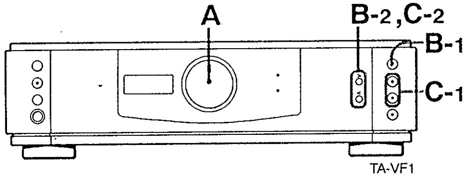
2 **Turn on the cassette deck, and always leave the POWER switch depressed.**

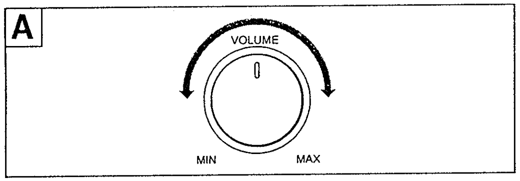
3 **Turn on the digital surround processor, and always leave the POWER switch depressed.**

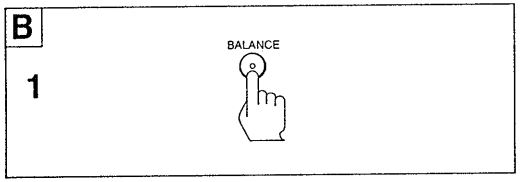
4 **Turn on the system's main power.**

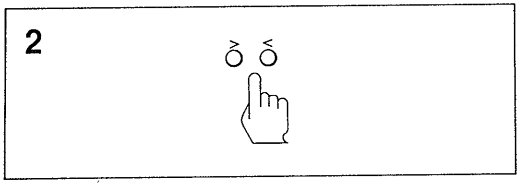
Even when the SYSTEM POWER switch is turned off
The clock in the tuner CD player continues to run.

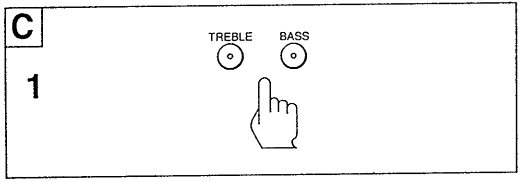
Note
No sound is heard for about 5 seconds after turning on the power.

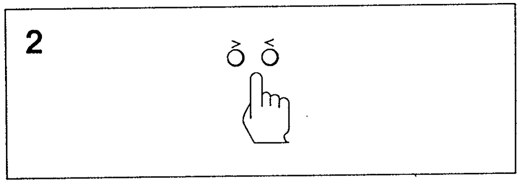












Basic Sound Adjustments

The following operations apply only to reproduced sound.

Adjusting the Volume A

To increase the volume, turn the VOLUME control clockwise.
To decrease it, turn the VOLUME control counterclockwise.
Be sure to turn down the VOLUME control to MIN before switching on the system. This prevents damage to speakers.

Adjusting the Balance B

1 **Press the BALANCE button so that the indicator is turned on.**
"BALANCE" is displayed for 1 second and the bar graph appears.

2 **Press the > or < button to adjust the balance.**
If you press the > and < buttons simultaneously, the balance is reset to the center position.

Adjusting the Tone Quality C

1 **Press the TREBLE button to adjust the treble or press the BASS button to adjust the bass so that the corresponding indicator is turned on.**
"TREBLE" or "BASS" is displayed for 1 second and the bar graph appears.

2 **Press the > or < button to adjust the treble or bass.**
If you press the > and < buttons simultaneously, the adjustment level is reset to the normal setting.

SECTION 2
IC PIN FUNCTIONS

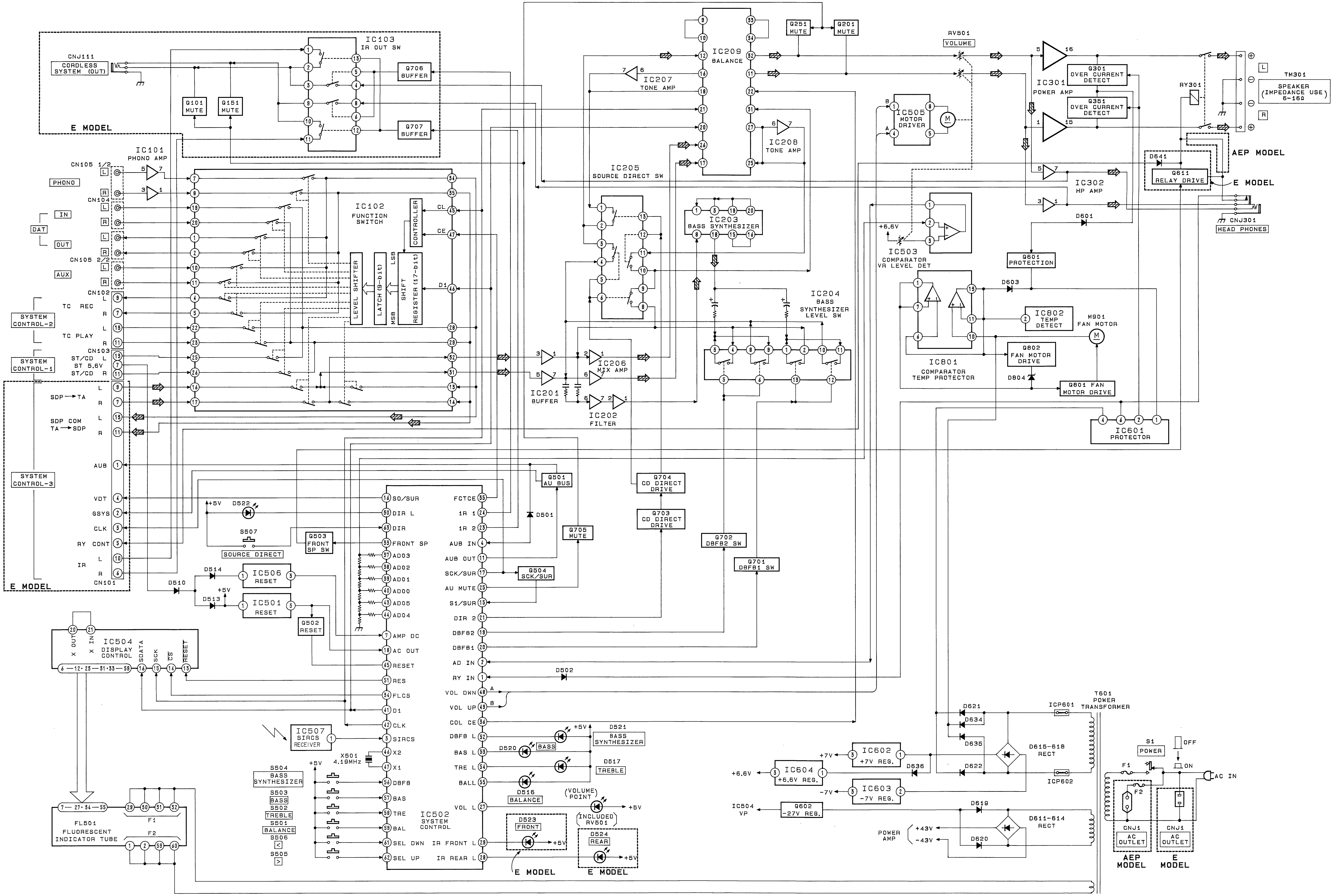
• IC502 μPD75108CW-C81

Pin No.	Pin Name	I /O	Description
1	RYIN	I	Relay control signal input. (Front speaker on/off).
2	ADIN	I	Volume control positioning detection software A/D input.
3	SIRCS	I	SIRCS code input.
4	AUBIN	I	Audio bus input.
5	—	I	Pull up to +5 volts.
6	—	I	Pull up to +5 volts.
7	AMPDC	I	Power ON/OFF detection for AMP.
8	TEST	I	Test mode input.
9	—	—	Open
10	—	—	Open
11	AUBOUT	O	Audio bus output.
12	—	O	Open
13	—	O	Open
14	—	O	Open
15	SI/SUR	I	Data receiving condition monitoring.
16	SO	I/O	Volume control positioning data output on sorround connection detector.
17	SCK/SUR	I	Serial clock input.
18	ACOUT	I	Power supply shut-off detection at edge of slope.
19	DBFB2	O	B-SYNTH control output.
20	DBFB1	O	B-SYNTH control output.
21	DIR2	O	DIRECT control output.
22	DIR1	O	DIRECT control output.
23	IR2	O	Cord less output select.
24	IR1	O	Cord less output select.
25	AUMUTE	O	Muting output.
26	—	O	Open
27	VOLL	O	LED output (VOL knob).
28	IRREARL	O	LED output (REAR indication of cord less).
29	IRFRNTL	O	LED output (FRONT indication of cord less).
30	DIRL	O	LED output (DIRECT).
31	NC	—	Not in use.
32	VDD	—	+Power supply terminal.
33	FRNTSP	O	FRONT speaker ON/OFF output.
34	FLCS	O	CHIP select output for IC504 (M66004MIFP).
35	FCTCE	O	CHIP ENABLE output for IC104 (CXD8200Q).
36	VOLCE	O	CHIP ENABLE output for IC209 (LC7537N).
37	AD03	O	Volume control detection software A/D output bit 3.
38	AD02	O	Volume control detection software A/D output bit 2.
39	AD01	O	Volume control detection software A/D output bit 1.
40	AD00	O	Volume control detection software A/D output bit 0.

Pin No.	Pin Name	I/O	Description
41	DI	O	Control data output for VOL, BAL, TREBLE, BASS, FUNCTION, INDICATOR tube.
42	CLK	O	CLOCK output.
43	AD05	O	Volume control detection software A/D output bit 5.
44	AD04	O	Volume control detection software A/D output bit 4.
45	RESET	I	Reset signal input at power ON.
46	X1	—	Xtal connection terminal.
47	X2	—	Xtal connection terminal.
48	VOLDN	O	VOL down.
49	VOLUP	O	VOL up.
50	—	—	Open
51	RES	O	RESET signal output.
52	DBFBL	O	LED output (DBFB)
53	BASL	O	LED output (BASS)
54	TREL	O	LED output (TREBLE)
55	BALL	O	LED output (BALANCE)
56	DBFB	I	KEY input (B-SYNTH)
57	BAS	I	KEY input (BASS)
58	TRE	I	KEY input (TREBLE)
59	BAL	I	KEY input (BALANCE)
60	—	—	GND
61	SELD	I	KEY input (<)
62	SELU	I	KEY input (>)
63	DIR	I	KEY input (DIRECT)
64	VSS	—	GND terminal.

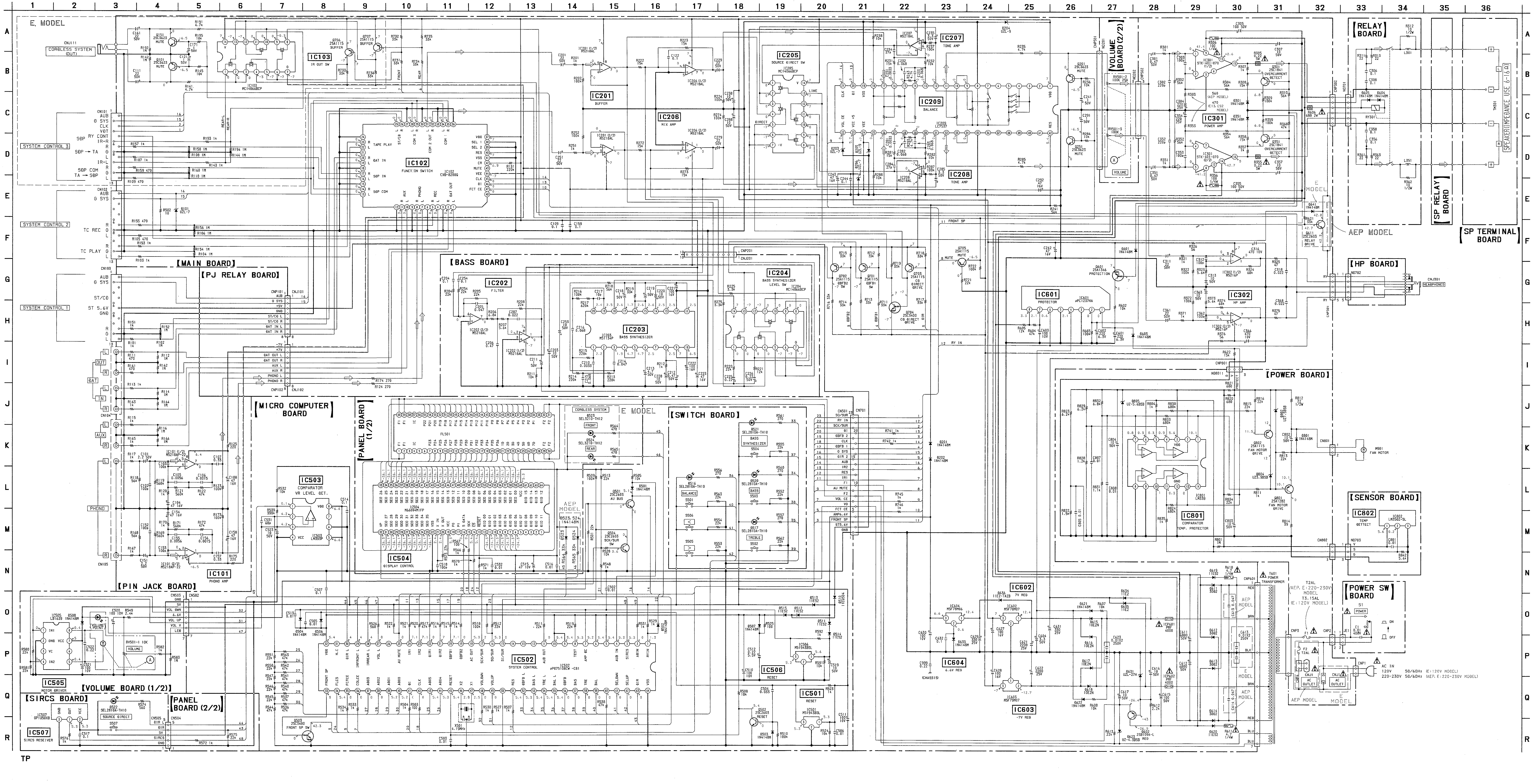
SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM


CNJ111 CORDLESS SYSTEM (OUT)
E MODEL
IC103 IR OUT SW
Q101 MUTE
Q151 MUTE
Q706 BUFFER
Q707 BUFFER
IC101 PHONO AMP
CN105 1/2
PHONO
CN104
DAT
IN
OUT
CN105 2/2
AUX
CN102
TC REC
TC PLAY
CN103
ST/CD L
ST 5.6V
ST/CD R
SYSTEM CONTROL-2
SYSTEM CONTROL-1
SYSTEM CONTROL-3
SDP→TA
SDP COM
TA→SDP
AUB
VDT
GSYS
CLK
RY CONT
IR
CN101
IC102 FUNCTION SWITCH
CONTROLLER
LEVEL SHIFTER
LATCH (9-bit)
SHIFT REGISTER (17-bit)
LSB
MSB
CL
CE
D1
IC209 BALANCE
Q251 MUTE
Q201 MUTE
IC207 TONE AMP
IC208 TONE AMP
IC205 SOURCE DIRECT SW
IC203 BASS SYNTHESIZER
IC204 BASS SYNTHESIZER LEVEL SW
IC201 BUFFER
IC206 MIX AMP
IC202 FILTER
Q704 CD DIRECT DRIVE
Q703 CD DIRECT DRIVE
Q702 DBFB2 SW
Q701 DBFB1 SW
RV501 VOLUME
IC505 MOTOR DRIVER
IC503 COMPARATOR VR LEVEL DET
+6.6V
IC301 POWER AMP
Q301 OVER CURRENT DETECT
Q351 OVER CURRENT DETECT
IC302 HP AMP
RY301
TM301 SPEAKER (IMPEDANCE USE) 6-16Ω
AEP MODEL
D641
Q611 RELAY DRIVE
E MODEL
CNJ301 HEAD PHONES
D601
Q601 PROTECTION
D603
IC801 COMPARATOR TEMP PROTECTOR
IC802 TEMP DETECT
M901 FAN MOTOR
Q802 FAN MOTOR DRIVE
D804
Q801 FAN MOTOR DRIVE
IC601 PROTECTOR
Q501 AU BUS
D501
Q705 MUTE
Q504 SCK/SUR
Q503 FRONT SP SW
D522
S507 SOURCE DIRECT
D514
IC506 RESET
D510
D513
IC501 RESET
Q502 RESET
+5V
IC502 SYSTEM CONTROL
SO/SUR
DIR L
DIR
FRONT SP
AD03
AD02
AD01
AD00
AD05
AD04
AMP DC
AC OUT
RESET
RES
FLCS
D1
CLK
SIRCS
X2
X1
DBFB
BAS
TRE
BAL
SEL DWN
SEL UP
FCTCE
IR 1
IR 2
AUB IN
AUB OUT
SCK/SUR
AU MUTE
S1/SUR
DIR 2
DBFB2
DBFB1
AD IN
RY IN
VOL DWN
VOL UP
COL CE
DBFB L
BAS L
TRE L
BALL
VOL L
IR FRONT L
IR REAR L
D502
IC504 DISPLAY CONTROL
X OUT
X IN
SDATA
SCK
CS
RESET
IC507 SIRCS RECEIVER
X501 4.19MHz
S504 BASS SYNTHESIZER
S503 BASS
S502 TREBLE
S501 BALANCE
S506 <
S505 >
D521 BASS SYNTHESIZER
D520 BASS
D517 TREBLE
D516 BALANCE
(VOLUME) POINT
(INCLUDED RV501)
D523 FRONT
D524 REAR
FL501 FLUORESCENT INDICATOR TUBE
F1
F2
IC602 +7V REG.
IC604 +6.6V REG.
IC603 -7V REG.
Q602 -27V REG.
IC504 VP
+7V
-7V
+6.6V
POWER AMP
+43V
-43V
D621
D634
D635
D636
D622
D619
D620
D615-618 RECT
D611-614 RECT
ICP601
ICP602
T601 POWER TRANSFORMER
S1 POWER
OFF
ON
AC IN
CNJ1 AC OUTLET
AEP MODEL
E MODEL

3-2. SCHEMATIC DIAGRAMS

• See page 21 for IC Block Diagrams.


E. MODEL
CORDLESS SYSTEM (OUT)
SYSTEM CONTROL 3
SYSTEM CONTROL 2
SYSTEM CONTROL 1
[MAIN BOARD]
[PJ RELAY BOARD]
IC103 IR OUT SW
IC102 FUNCTION SWITCH
IC201 BUFFER
IC206 MIX AMP
IC205 SOURCE DIRECT SW
IC207 TONE AMP
IC209 BALANCE
IC208 TONE AMP
[VOLUME BOARD (2/2)]
IC301 POWER AMP
[RELAY BOARD]
[SP RELAY BOARD]
[SP TERMINAL BOARD]
SPEAKER (IMPEDANCE USE 6-16Ω)
AEP MODEL
[HP BOARD]
[BASS BOARD]
IC202 FILTER
IC203 BASS SYNTHESIZER
IC204 BASS SYNTHESIZER LEVEL SW
IC601 PROTECTOR
IC302 HP AMP
[POWER BOARD]
[MICRO COMPUTER BOARD]
[PANEL BOARD (1/2)]
[SWITCH BOARD]
IC503 COMPARATOR VR LEVEL DET.
IC504 DISPLAY CONTROL
PHONO
IC101 PHONO AMP
[PIN JACK BOARD]
IC801 COMPARATOR TEMP. PROTECTOR
[SENSOR BOARD]
IC802
[POWER SW BOARD]
IC602 7V REG
IC604 6.4V REG
IC603 -7V REG
IC502 SYSTEM CONTROL
IC506 RESET
IC501 RESET
IC505 MOTOR DRIVER
[VOLUME BOARD (1/2)]
[SIRCS BOARD]
IC507 SIRCS RECEIVER
[PANEL BOARD (2/2)]
TP

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- : B+ Line
- : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PHONO

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	F-8	D804	D-20
D201	J-12	D805	C-19
D202	J-12		
D203	I-5	IC101	C-4
D204	J-11	IC102	D-10
D205	I-5	IC103	F-11
D206	I-12	IC201	F-9
D301	G-13	IC202	H-5
D351	G-13	IC203	G-4
D501	F-23	IC204	F-5
D502	F-23	IC205	G-10
D503	F-23	IC206	F-10
D504	F-23	IC207	J-10
D506	G-25	IC208	H-10
D507	F-26	IC209	I-11
D508	B-14	IC301	E-14
D510	F-26	IC302	J-13
D511	F-26	IC501	F-25
D512	F-26	IC502	G-24
D513	F-26	IC503	H-26
D514	G-26	IC504	I-30
D515	F-26	IC505	B-13
D516	H-21	IC506	G-25
D517	I-21	IC507	G-30
D520	J-21	IC601	F-15
D521	J-21	IC602	J-18
D522	F-30	IC603	J-18
D523	I-25	IC604	J-17
D524	I-25	IC801	C-19
D601	H-13	IC802	D-24
D603	F-15		
D604	G-20	Q101	E-12
D605	G-20	Q151	E-12
D611	H-15	Q201	H-12
D612	H-15	Q251	H-11
D613	G-15	Q301	G-13
D614	H-15	Q351	G-13
D615	I-17	Q501	F-22
D616	J-17	Q502	F-23
D617	J-17	Q503	H-26
D618	J-17	Q504	G-23
D619	I-16	Q601	H-13
D620	I-16	Q602	I-17
D621	I-14	Q611	I-13
D622	I-14	Q701	H-9
D623	I-16	Q702	H-9
D631	I-18	Q703	H-9
D633	J-16	Q704	H-9
D634	I-16	Q705	I-12
D635	J-16	Q706	G-11
D636	J-17	Q707	H-11
D641	H-11	Q801	C-20
D801	B-20	Q802	D-19
D802	D-20	Q804	D-23

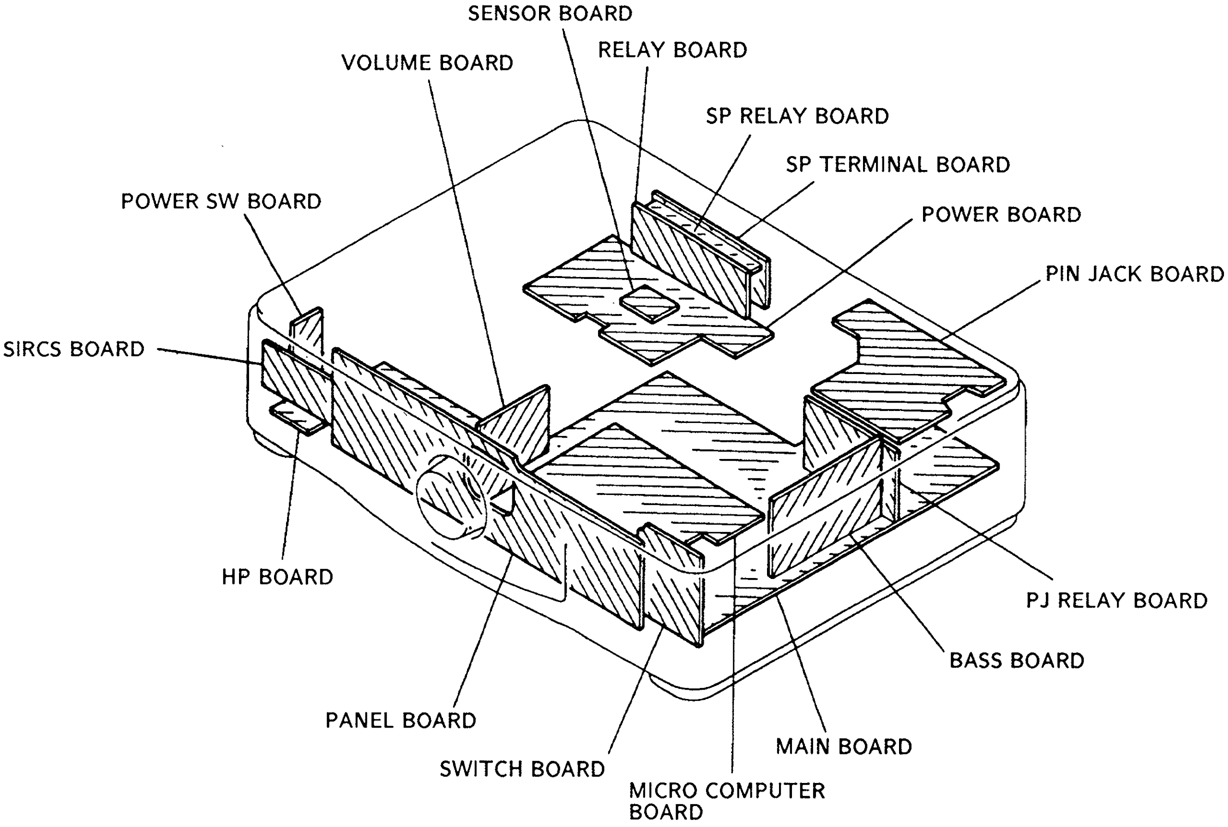
Note:
- ● ○—— : parts extracted from the component side.
- ● ▨ : Pattern on the side which is seen.

3-3. PRINTED WIRING BOARDS

• See page 19, 20 for Circuit Boards Location and Semiconductor Lead Layouts.

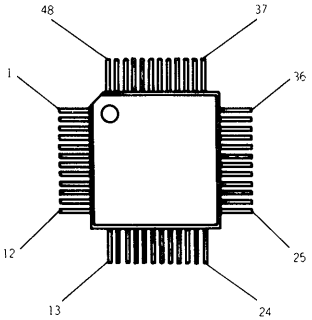
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
A B C D E F G H I J K
【PIN JACK BOARD】
【PJ RELAY BOARD】
【MAIN BOARD】
E MODEL
【VOLUME BOARD】
【POWER BOARD】
【POWER SW BOARD】
【SENSOR BOARD】
FL501 FLUORESCENT INDICATOR TUBE
T501 POWER TRANSFORMER
【BASS BOARD】
【HP BOARD】
【SP TERMINAL BOARD】
【SP RELAY BOARD】
【RELAY BOARD】
AEP MODEL
【POWER BOARD】
【MICRO COMPUTER BOARD】
【SIRCS BOARD】
【SWITCH BOARD】
【PANEL BOARD】
FL501 FLUORESCENT INDICATOR
MIN L R MAX
AC OUTLET
SYSTEM CONTROL 1
PHONO

3-4. CIRCUIT BOARDS LOCATION


SENSOR BOARD
RELAY BOARD
VOLUME BOARD
SP RELAY BOARD
SP TERMINAL BOARD
POWER SW BOARD
POWER BOARD
PIN JACK BOARD
SIRCS BOARD
HP BOARD
PJ RELAY BOARD
BASS BOARD
PANEL BOARD
MAIN BOARD
SWITCH BOARD
MICRO COMPUTER BOARD

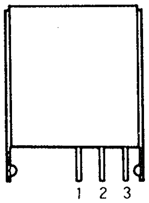
3-5. SEMICONDUCTOR LEAD LAYOUTS

CXD8200Q


48
37
1
36
12
25
13
24

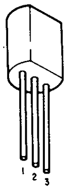
(TOP VIEW)

GP1U50XB



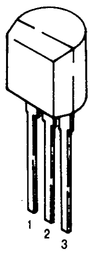
1 Vout
2 Vcc
3 GND

LM35DZ-SL



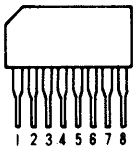
Pin 1 Vcc
2 OUTPUT
3 GND

M51943BSL

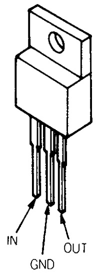


1. Vout
2. Vss
3. Vin

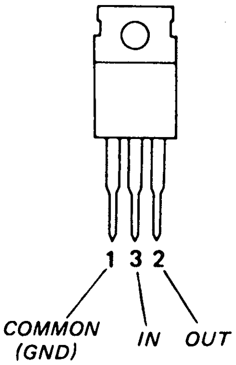
M5218AL
μPC1237HA



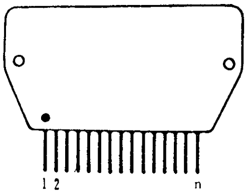
M5F78M06
M5F78M07



M5F79M07

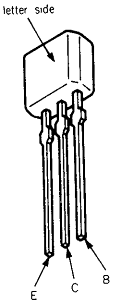

1 3 2
COMMON
(GND)
IN
OUT

STK401-070

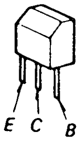


(Making side View)

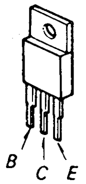
2SA1175-HFE
2SC3623A-LK


letter side
E
C
B

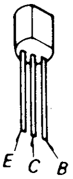
2SB733-5



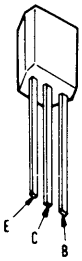
2SB1094-LK



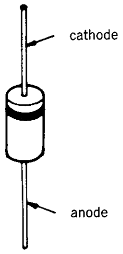
2SC1815-Y
2SC1841-PAFAEA



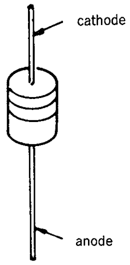
2SC2603-EF
DTA124ES
DTC124ES



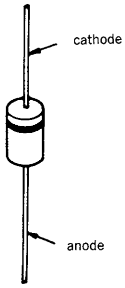
1N4148M
10E2
10E2N


cathode
anode

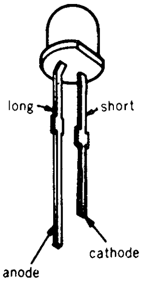
11EQS04
11ES2
HZS7A1L
HZS9A2L
UZ-3.9BSB
UZ-4.3BSB
UZ-5.6BSB
UZ-7.5BSB
UZL-7L1
UZL-27H


cathode
anode

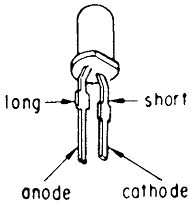
30DF2


cathode
anode

SEL2810A

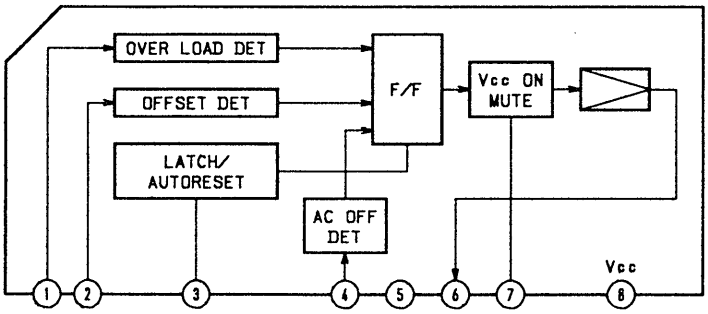

long
short
anode
cathode

SEL3210S-CD

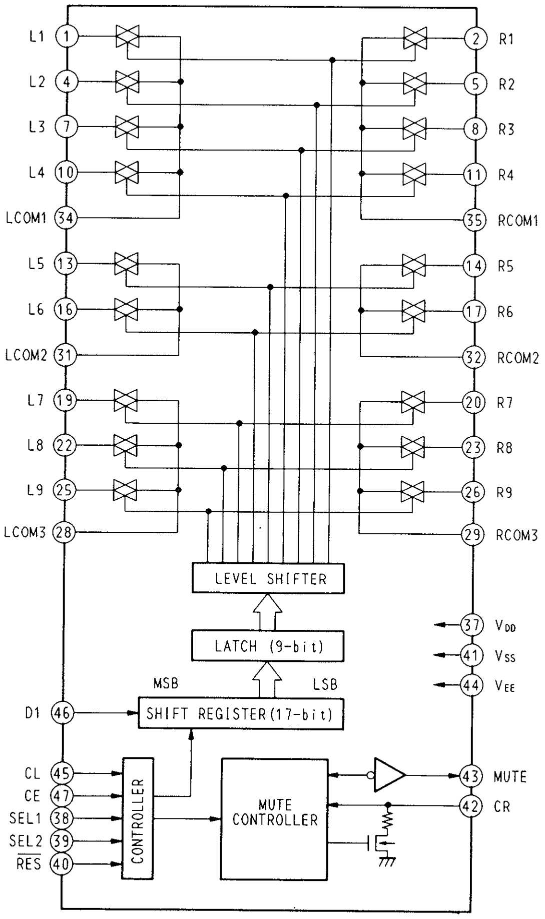

long
short
anode
cathode

3-6. IC BLOCK DIAGRAMS

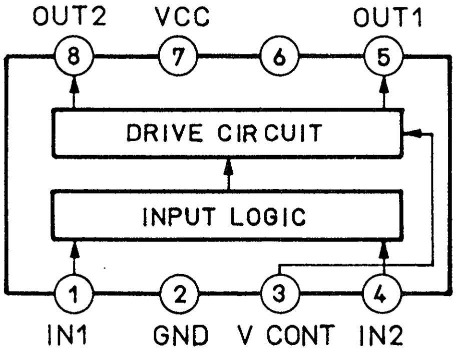
IC601 μPC1237HA


OVER LOAD DET
OFFSET DET
LATCH/ AUTORESET
F/F
Vcc ON MUTE
AC OFF DET
Vcc
1
2
3
4
5
6
7
8

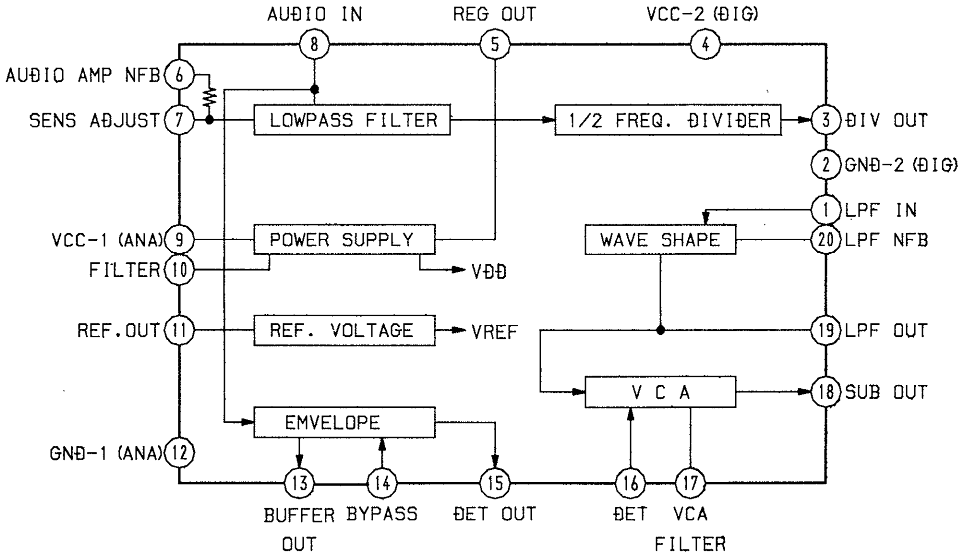
IC102 CXD-8200Q


L1 1
L2 4
L3 7
L4 10
LCOM1 34
L5 13
L6 16
LCOM2 31
L7 19
L8 22
L9 25
LCOM3 28
2 R1
5 R2
8 R3
11 R4
35 RCOM1
14 R5
17 R6
32 RCOM2
20 R7
23 R8
26 R9
29 RCOM3
LEVEL SHIFTER
LATCH (9-bit)
MSB
LSB
SHIFT REGISTER (17-bit)
37 VDD
41 Vss
44 VEE
D1 46
CL 45
CE 47
SEL1 38
SEL2 39
RES 40
CONTROLLER
MUTE CONTROLLER
43 MUTE
42 CR

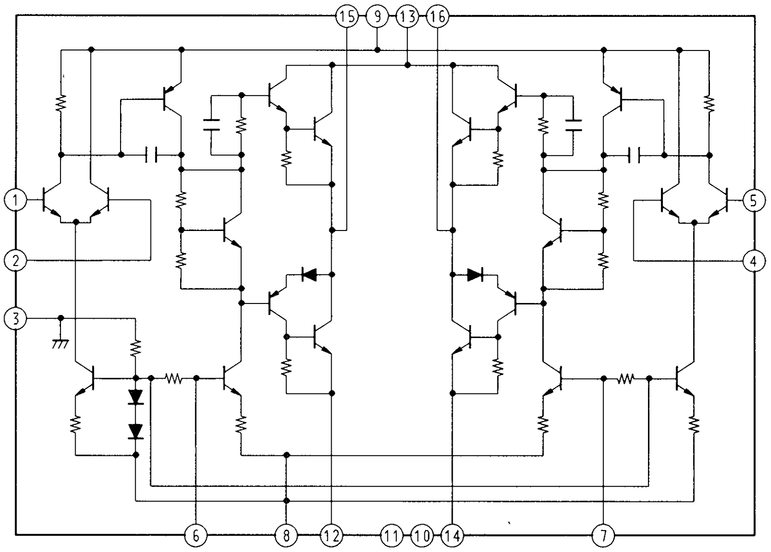
IC505 LB1639


OUT2
VCC
OUT1
8
7
6
5
DRIVE CIRCUIT
INPUT LOGIC
1
2
3
4
IN1
GND
V CONT
IN2

IC203 M51134P


AUDIO IN
REG OUT
VCC-2 (DIG)
8
5
4
AUDIO AMP NFB
6
SENS ADJUST
7
LOWPASS FILTER
1/2 FREQ. DIVIDER
3
DIV OUT
2
GND-2 (DIG)
1
LPF IN
VCC-1 (ANA)
9
POWER SUPPLY
WAVE SHAPE
20
LPF NFB
FILTER
10
VDD
REF.OUT
11
REF. VOLTAGE
VREF
19
LPF OUT
V C A
18
SUB OUT
EMVELOPE
GND-1 (ANA)
12
13
14
15
16
17
BUFFER OUT
BYPASS
DET OUT
DET
VCA FILTER

IC301 STK401-070


15
9
13
16
1
2
3
5
4
6
8
12
11
10
14
7

SECTION 4
EXPLODED VIEWS

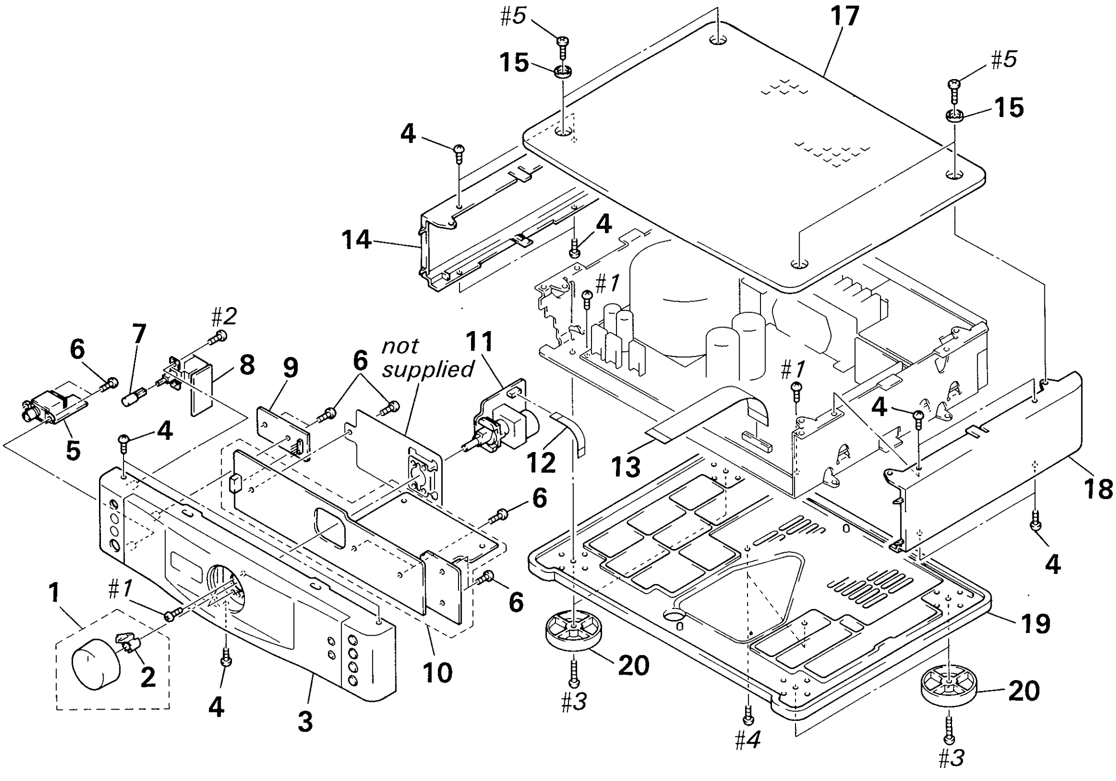
NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- hardware (#mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

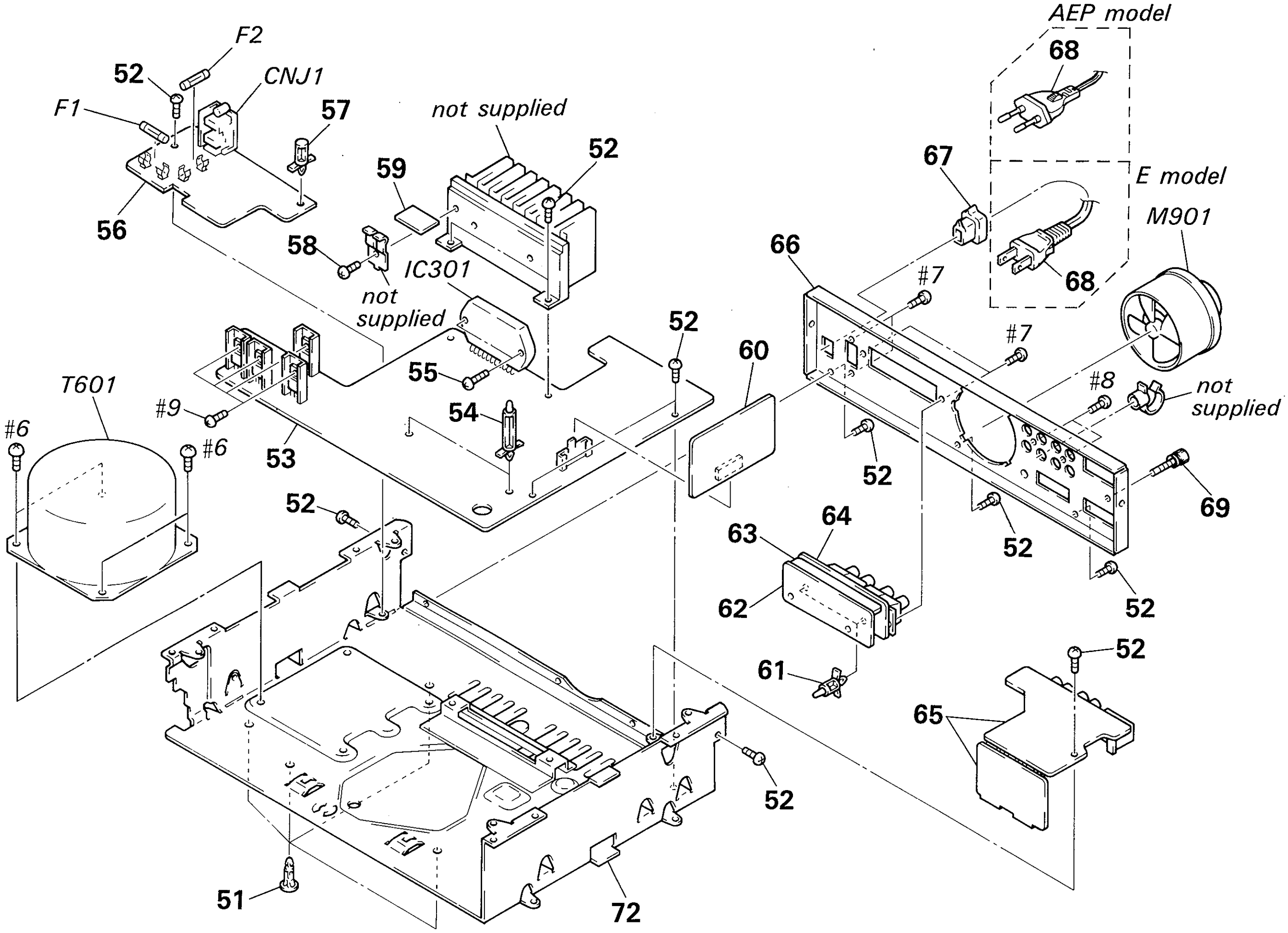
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

4-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-4942-019-1	KNOB ASSY, VOL	
2	4-948-030-01	PLATE, LIGHT GUIDE	
3	X-4941-993-1	PANEL ASSY, FRONT (E)	
3	X-4942-726-1	PANEL ASSY, FRONT (AEP)	
4	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
* 5	1-641-975-11	HP BOARD	
6	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
7	4-948-024-01	BUTTON (POWER)	
* 8	1-641-976-11	SW BOARD	
* 9	1-641-973-11	SIRCS BOARD	
* 10	A-4345-843-A	PANEL BOARD, COMPLETE (E)	
* 10	A-4347-912-A	PANEL BOARD, COMPLETE (AEP)	
* 11	1-641-974-11	VOLUME BOARD	
12	1-590-238-31	WIRE, FLAT TYPE (7 CORE)	
13	1-575-664-31	WIRE, FLAT TYPE (23 CORE)	
14	4-948-019-01	PLATE (A) (L), SIDE	
15	4-928-025-51	ESCUTCHEON (TOP)	
* 17	4-948-022-01	COVER (UPPER)	
18	4-948-020-01	PLATE (A) (R), SIDE	
19	4-948-021-01	COVER (LOWER) (TA)	
20	4-948-027-01	FOOT (DIA. 50)	

4-2. CHASSIS SECTION


F2
52
CNJ1
F1
57
not supplied
52
59
56
58
IC301
not supplied
AEP model
68
67
E model
M901
66
#7
68
#7
52
60
T601
#9
55
54
#8
not supplied
#6
#6
53
52
69
52
63
64
52
62
52
52
61
65
52
51
72

Ref. No.	Part No.	Description	Remark
* 51	3-704-198-21	SUPPORT, PC	
52	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
* 53	A-4347-902-A	MAIN BOARD, COMPLETE (E)	
* 53	A-4347-907-A	MAIN BOARD, COMPLETE (AEP)	
* 54	4-924-098-81	HOLDER, PC BOARD	
55	4-928-635-11	SCREW, +BV (2.6X16) TAPPING	
* 56	A-4347-904-A	POWER BOARD, COMPLETE (E)	
* 56	A-4347-908-A	POWER BOARD, COMPLETE (AEP)	
* 57	4-944-316-21	HOLDER, PC BOARD	
58	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
* 59	1-641-969-11	SENSOR BOARD	
* 60	A-4347-915-A	BASS BOARD, COMPLETE	
* 61	4-943-687-01	HOLDER, PC BOARD	
* 62	1-641-979-11	RELAY BOARD	
* 63	1-641-978-11	SP RELAY BOARD	
* 64	1-641-981-11	SP TERMINAL BOARD	
* 65	A-4345-841-A	PIN JACK BOARD, COMPLETE	
* 66	4-947-626-21	PANEL, BACK (AEP)	
* 66	4-947-626-51	PANEL, BACK (E:120V)	
* 66	4-947-626-61	PANEL, BACK (E:220-230V)	
67	3-703-244-11	BUSHING (2104), CORD (AEP)	
67	3-703-571-00	BUSHING (S) (4516), CORD (E)	
⚠68	1-575-651-71	CORD, POWER (AEP)	
⚠68	1-575-656-21	CORD, POWER (E)	
69	4-947-010-01	SCREW, FEEDER FIXED	
72	X-4942-761-1	CHASSIS ASSY	
⚠CNJ1	1-526-794-11	OUTLET, AC (AEP)	
⚠CNJ1	1-540-038-11	OUTLET, AC (NONPOLAR) (1P) (E)	
⚠F1	1-532-203-00	FUSE (2A/250V) (AEP, E:220-230V)	
⚠F1	1-532-237-00	FUSE, TIME LAG (3.15A/250V) (E:120V)	
⚠F2	1-532-203-00	FUSE (2A/250V) (AEP)	
M901	X-4942-029-1	CASE ASSY, FAN	
⚠T601	1-450-944-11	TRANSFORMER, POWER (AEP, E:220-230V)	
⚠T601	1-450-946-11	TRANSFORMER, POWER (E:120V)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4347-915-A	BASS BOARD, COMPLETE			
		********************			
		< CAPACITOR >			
C203	1-126-059-11	ELECT	10uF	20%	50V
C204	1-136-165-00	FILM	0.1uF	5%	50V
C205	1-136-161-00	FILM	0.047uF	5%	50V
C206	1-136-173-00	FILM	0.47uF	5%	50V
C207	1-136-157-00	FILM	0.022uF	5%	50V
C210	1-130-477-00	MYLAR	0.0033uF	5%	50V
C211	1-126-301-11	ELECT	1uF	20%	50V
C212	1-126-300-11	ELECT	0.47uF	20%	50V
C213	1-126-163-11	ELECT	4.7uF	20%	50V
C214	1-136-161-00	FILM	0.047uF	5%	50V
C215	1-136-163-00	FILM	0.068uF	5%	50V
C216	1-136-163-00	FILM	0.068uF	5%	50V
C217	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C218	1-126-301-11	ELECT	1uF	20%	50V
C219	1-126-301-11	ELECT	1uF	20%	50V
C220	1-126-059-11	ELECT	10uF	20%	50V
C221	1-126-023-11	ELECT	100uF	20%	16V
C222	1-126-023-11	ELECT	100uF	20%	16V
C223	1-126-022-11	ELECT	47uF	20%	16V
C225	1-136-169-00	FILM	0.22uF	5%	50V
C226	1-136-169-00	FILM	0.22uF	5%	50V
C228	1-126-059-11	ELECT	10uF	20%	50V
C253	1-126-059-11	ELECT	10uF	20%	50V
C254	1-136-165-00	FILM	0.1uF	5%	50V
		< JACK >			
* CNJ201	1-573-299-11	CONNECTOR, BOARD TO BOARD 10P			
		< IC >			
IC202	8-759-634-50	IC M5218AL			
IC203	8-759-043-16	IC M51134P			
IC204	8-759-000-49	IC MC14066BCP			
		< RESISTOR >			
R204	1-249-433-11	CARBON	22K	5%	1/4W
R205	1-249-433-11	CARBON	22K	5%	1/4W
R206	1-249-427-11	CARBON	6.8K	5%	1/4W
R207	1-249-426-11	CARBON	5.6K	5%	1/4W
R208	1-249-433-11	CARBON	22K	5%	1/4W
R211	1-249-429-11	CARBON	10K	5%	1/4W
R212	1-249-417-11	CARBON	1K	5%	1/4W
R213	1-247-887-00	CARBON	220K	5%	1/4W
R214	1-247-887-00	CARBON	220K	5%	1/4W
R215	1-247-887-00	CARBON	220K	5%	1/4W
R216	1-249-441-11	CARBON	100K	5%	1/4W
R217	1-247-898-11	CARBON	620K	5%	1/4W
R218	1-249-438-11	CARBON	56K	5%	1/4W
R219	1-249-435-11	CARBON	33K	5%	1/4W
R220	1-249-433-11	CARBON	22K	5%	1/4W
R221	1-249-430-11	CARBON	12K	5%	1/4W
R225	1-249-423-11	CARBON	3.3K	5%	1/4W
R254	1-249-433-11	CARBON	22K	5%	1/4W
R275	1-249-423-11	CARBON	3.3K	5%	1/4W
**					
*	1-641-975-11	HP BOARD			
		********			
		< JACK >			
CNJ301	1-507-981-41	JACK (LARGE TYPE)(HEADPHONES)			
**					
*	A-4347-902-A	MAIN BOARD, COMPLETE (E)			
*	A-4347-907-A	MAIN BOARD, COMPLETE (AEP)			
		*************************			
	4-870-539-00	PLATE, GROUND			
*	4-942-204-01	PLATE, GROUND			

MAIN

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C109	1-164-159-11	CERAMIC	0.1uF		50V
C111	1-126-233-11	ELECT	22uF	20%	50V (E)
C121	1-126-301-11	ELECT	1uF	20%	50V (E)
C122	1-164-159-11	CERAMIC	0.1uF		50V
C159	1-164-159-11	CERAMIC	0.1uF		50V
C161	1-126-233-11	ELECT	22uF	20%	50V (E)
C171	1-126-301-11	ELECT	1uF	20%	50V (E)
C201	1-126-233-11	ELECT	22uF	20%	50V
C229	1-126-233-11	ELECT	22uF	20%	50V
C231	1-130-477-00	MYLAR	0.0033uF	5%	50V
C232	1-136-163-00	FILM	0.068uF	5%	50V
C233	1-136-163-00	FILM	0.068uF	5%	50V
C234	1-164-056-11	CERAMIC	27PF	5%	50V
C235	1-126-162-11	ELECT	3.3uF	20%	50V
C238	1-126-059-11	ELECT	10uF	20%	50V
C241	1-126-301-11	ELECT	1uF	20%	50V
C242	1-126-022-11	ELECT	47uF	20%	16V
C243	1-126-022-11	ELECT	47uF	20%	16V
C244	1-164-159-11	CERAMIC	0.1uF		50V
C251	1-126-233-11	ELECT	22uF	20%	50V
C279	1-126-233-11	ELECT	22uF	20%	50V
C281	1-130-477-00	MYLAR	0.0033uF	5%	50V
C282	1-136-163-00	FILM	0.068uF	5%	50V
C283	1-136-163-00	FILM	0.068uF	5%	50V
C284	1-164-056-11	CERAMIC	27PF	5%	50V
C285	1-126-162-11	ELECT	3.3uF	20%	50V
C288	1-126-059-11	ELECT	10uF	20%	50V
C291	1-126-301-11	ELECT	1uF	20%	50V
C292	1-126-022-11	ELECT	47uF	20%	16V
C301	1-126-300-11	ELECT	0.47uF	20%	50V
C302	1-110-339-11	MYLAR	220PF	5%	50V
C303	1-110-335-11	MYLAR	100PF	5%	50V
C304	1-124-120-11	ELECT	220uF	20%	25V
C305	1-124-122-11	ELECT	100uF	20%	50V
C307	1-126-059-11	ELECT	10uF	20%	50V
C311	1-126-233-11	ELECT	22uF	20%	50V
C312	1-110-335-11	MYLAR	100PF	5%	50V
C313	1-126-059-11	ELECT	10uF	20%	50V
C316	1-124-997-11	ELECT	470uF	20%	10V
C318	1-136-157-00	FILM	0.022uF	5%	50V
C351	1-126-300-11	ELECT	0.47uF	20%	50V
C352	1-110-339-11	MYLAR	220PF	5%	50V
C353	1-110-335-11	MYLAR	100PF	5%	50V
C354	1-124-120-11	ELECT	220uF	20%	25V
C355	1-124-122-11	ELECT	100uF	20%	50V
C357	1-126-059-11	ELECT	10uF	20%	50V
C361	1-126-233-11	ELECT	22uF	20%	50V
C362	1-110-335-11	MYLAR	100PF	5%	50V
C363	1-126-059-11	ELECT	10uF	20%	50V
C366	1-124-997-11	ELECT	470uF	20%	10V
C368	1-136-157-00	FILM	0.022uF	5%	50V
C601	1-124-587-11	ELECT	220uF	20%	6.3V
C602	1-124-587-11	ELECT	220uF	20%	6.3V
C603	1-124-994-11	ELECT	100uF	20%	10V
C604	1-126-162-11	ELECT	3.3uF	20%	50V
C611	1-128-543-11	CAP, ELECT			
C612	1-128-543-11	CAP, ELECT			
C613	1-102-394-11	CERAMIC	0.01uF		250V(E)
C613	1-136-161-00	FILM	0.047uF	5%	50V(AEP)
C614	1-136-161-00	FILM	0.047uF	5%	50V(AEP)
C615	1-124-122-11	ELECT	100uF	20%	50V
C616	1-126-059-11	ELECT	10uF	20%	50V
C617	1-126-059-11	ELECT	10uF	20%	50V
C621	1-124-962-11	ELECT	2200uF	20%	25V
C622	1-124-962-11	ELECT	2200uF	20%	25V
C623	1-102-394-11	CERAMIC	0.01uF		250V
C627	1-124-122-11	ELECT	100uF	20%	50V
C628	1-124-122-11	ELECT	100uF	20%	50V
C629	1-126-025-11	ELECT	330uF	20%	25V
C630	1-124-994-11	ELECT	100uF	20%	10V
C631	1-126-025-11	ELECT	330uF	20%	25V
C632	1-164-159-11	CERAMIC	0.1uF		50V
C999	1-136-169-00	FILM	0.22uF	5%	50V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN101	1-691-004-31	PLUG, CONNECTOR (PC BOARD) 13P (SYSTEM CONTROL 3)(E)
* CN102	1-691-004-21	PLUG, CONNECTOR (PC BOARD) 13P (SYSTEM CONTROL 2)
* CN701	1-568-839-11	SOCKET, CONNECTOR 23P

< JACK >

Ref. No.	Part No.	Description
* CNJ101	1-565-347-11	SOCKET, CONNECTOR (PC BOARD) 8P
* CNJ102	1-565-347-11	SOCKET, CONNECTOR (PC BOARD) 8P
CNJ111	1-507-967-11	JACK (CORDLESS SYSTEM OUT)(E)

< CONNECTOR >

Ref. No.	Part No.	Description
* CNP101	1-565-344-11	PIN, CONNECTOR (PC BOARD) 8P
* CNP102	1-565-344-11	PIN, CONNECTOR (PC BOARD) 8P
CNP201	1-573-296-11	CONNECTOR, BOARD TO BOARD 10P
* CNP301	1-564-508-11	PLUG, CONNECTOR 5P
* CNP302	1-564-509-11	PLUG, CONNECTOR 6P

MAIN

Ref. No.	Part No.	Description	Remark
* CNP501	1-564-506-11	PLUG, CONNECTOR 3P	
* CNP502	1-564-506-11	PLUG, CONNECTOR 3P	
* CNP601	1-564-915-11	PIN, CONNECTOR 7P	
* CNP801	1-564-337-00	PIN, CONNECTOR 3P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D101	8-719-000-75	DIODE UZL-7L1	
D201	8-719-987-63	DIODE 1N4148M	
D202	8-719-987-63	DIODE 1N4148M	
D203	8-719-000-78	DIODE UZL-7L	
D204	8-719-933-54	DIODE HZS9A2L	
D205	8-719-933-54	DIODE HZS9A2L	
D206	8-719-000-78	DIODE UZL-7L	
D301	8-719-987-63	DIODE 1N4148M	
D351	8-719-987-63	DIODE 1N4148M	
D601	8-719-987-63	DIODE 1N4148M	
D603	8-719-987-63	DIODE 1N4148M	
D611	8-719-230-02	DIODE 30DF2	
D612	8-719-230-02	DIODE 30DF2	
D613	8-719-230-02	DIODE 30DF2	
D614	8-719-230-02	DIODE 30DF2	
D615	8-719-200-77	DIODE 10E2N	
D616	8-719-200-77	DIODE 10E2N	
D617	8-719-200-77	DIODE 10E2N	
D618	8-719-200-77	DIODE 10E2N	
D619	8-719-200-82	DIODE 11ES2	
D620	8-719-200-82	DIODE 11ES2	
D621	8-719-987-63	DIODE 1N4148M	
D622	8-719-987-63	DIODE 1N4148M	
D623	8-719-010-29	DIODE UZ-4.3BSB	
D631	8-719-002-48	DIODE UZL-27H	
D633	8-719-987-63	DIODE 1N4148M	
D634	8-719-200-02	DIODE 10E2	
D635	8-719-200-02	DIODE 10E2	
D636	8-719-200-02	DIODE 10E2	
D641	8-719-987-63	DIODE 1N4148M (E)	

< IC >

Ref. No.	Part No.	Description	Remark
IC102	8-759-047-14	IC CXD8200Q	
IC103	8-759-000-49	IC MC14066BCP (E)	
IC201	8-759-634-50	IC M5218AL	
IC205	8-759-000-49	IC MC14066BCP	
IC206	8-759-634-50	IC M5218AL	
IC207	8-759-634-50	IC M5218AL	
IC208	8-759-634-50	IC M5218AL	
IC209	8-759-802-31	IC LC7537	
IC301	8-749-922-93	IC STK401-070	
IC302	8-759-603-37	IC M5216P	
IC601	8-759-111-68	IC uPC1237HA	
IC602	8-759-605-00	IC M5F78M07L	
IC603	8-759-604-95	IC M5F79M07L	
IC604	8-759-604-99	IC M5F78M06L	

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠ICP601	1-532-845-21	LINK, IC	
⚠ICP602	1-532-845-21	LINK, IC	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q101	8-729-141-30	TRANSISTOR 2SC3623A-LK (E)	
Q151	8-729-141-30	TRANSISTOR 2SC3623A-LK (E)	
Q201	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q251	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q301	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q351	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q601	8-729-900-63	TRANSISTOR DTA124ES	
Q602	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q611	8-729-620-05	TRANSISTOR 2SC2603-EF (E)	
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q702	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q703	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q704	8-729-900-36	TRANSISTOR DTC124ES	
Q705	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q706	8-729-119-76	TRANSISTOR 2SA1175-HFE (E)	
Q707	8-729-119-76	TRANSISTOR 2SA1175-HFE (E)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R103	1-249-417-11	CARBON 1K 5% 1/4W	
R104	1-247-903-00	CARBON 1M 5% 1/4W	
R105	1-249-413-11	CARBON 470 5% 1/4W	
R106	1-247-903-00	CARBON 1M 5% 1/4W	
R107	1-249-417-11	CARBON 1K 5% 1/4W (E)	
R108	1-247-903-00	CARBON 1M 5% 1/4W (E)	
R109	1-249-413-11	CARBON 470 5% 1/4W (E)	
R110	1-247-903-00	CARBON 1M 5% 1/4W (E)	
R124	1-249-410-11	CARBON 270 5% 1/4W	
R131	1-247-887-00	CARBON 220K 5% 1/4W	
R141	1-249-425-11	CARBON 4.7K 5% 1/4W (E)	
R142	1-247-903-00	CARBON 1M 5% 1/4W (E)	
R143	1-249-417-11	CARBON 1K 5% 1/4W (E)	
R144	1-247-903-00	CARBON 1M 5% 1/4W (E)	
R145	1-249-429-11	CARBON 10K 5% 1/4W (E)	
R153	1-249-417-11	CARBON 1K 5% 1/4W	
R154	1-247-903-00	CARBON 1M 5% 1/4W	
R155	1-249-413-11	CARBON 470 5% 1/4W	
R156	1-247-903-00	CARBON 1M 5% 1/4W	
R157	1-249-417-11	CARBON 1K 5% 1/4W (E)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description				Remark
R158	1-247-903-00	CARBON	1M	5%	1/4W	(E)
R159	1-249-413-11	CARBON	470	5%	1/4W	(E)
R160	1-247-903-00	CARBON	1M	5%	1/4W	(E)
R174	1-249-410-11	CARBON	270	5%	1/4W	
R191	1-249-425-11	CARBON	4.7K	5%	1/4W	(E)
R192	1-247-903-00	CARBON	1M	5%	1/4W	(E)
R193	1-249-417-11	CARBON	1K	5%	1/4W	(E)
R194	1-247-903-00	CARBON	1M	5%	1/4W	(E)
R195	1-249-429-11	CARBON	10K	5%	1/4W	(E)
R201	1-249-417-11	CARBON	1K	5%	1/4W	
R202	1-249-441-11	CARBON	100K	5%	1/4W	
R222	1-249-431-11	CARBON	15K	5%	1/4W	
R223	1-249-431-11	CARBON	15K	5%	1/4W	
R224	1-249-441-11	CARBON	100K	5%	1/4W	
R231	1-249-431-11	CARBON	15K	5%	1/4W	
R232	1-249-429-11	CARBON	10K	5%	1/4W	
R235	1-249-425-11	CARBON	4.7K	5%	1/4W	
R236	1-249-429-11	CARBON	10K	5%	1/4W	
R237	1-249-441-11	CARBON	100K	5%	1/4W	
R238	1-249-429-11	CARBON	10K	5%	1/4W	
R241	1-249-438-11	CARBON	56K	5%	1/4W	
R243	1-249-425-11	CARBON	4.7K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W	
R252	1-249-441-11	CARBON	100K	5%	1/4W	
R272	1-249-431-11	CARBON	15K	5%	1/4W	
R273	1-249-431-11	CARBON	15K	5%	1/4W	
R274	1-249-441-11	CARBON	100K	5%	1/4W	
R281	1-249-431-11	CARBON	15K	5%	1/4W	
R282	1-249-429-11	CARBON	10K	5%	1/4W	
R285	1-249-425-11	CARBON	4.7K	5%	1/4W	
R286	1-249-429-11	CARBON	10K	5%	1/4W	
R287	1-249-441-11	CARBON	100K	5%	1/4W	
R288	1-249-429-11	CARBON	10K	5%	1/4W	
R293	1-249-425-11	CARBON	4.7K	5%	1/4W	
R301	1-249-417-11	CARBON	1K	5%	1/4W	
R302	1-249-438-11	CARBON	56K	5%	1/4W	
R303	1-249-413-11	CARBON	470	5%	1/4W	(E)
R303	1-249-414-11	CARBON	560	5%	1/4W	(AEP)
R304	1-249-438-11	CARBON	56K	5%	1/4W	
R305	1-217-156-00	RES, METAL PLATE			0.22	
⚠R306	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R307	1-249-417-11	CARBON	1K	5%	1/4W	
R308	1-249-431-11	CARBON	15K	5%	1/4W	
R309	1-249-441-11	CARBON	100K	5%	1/4W	
R310	1-249-438-11	CARBON	56K	5%	1/4W	
R321	1-249-417-11	CARBON	1K	5%	1/4W	
R322	1-249-441-11	CARBON	100K	5%	1/4W	
R323	1-249-426-11	CARBON	5.6K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R324	1-249-439-11	CARBON	68K	5%	1/4W	
R325	1-249-401-11	CARBON	47	5%	1/4W	
R326	1-249-402-11	CARBON	56	5%	1/4W	
R351	1-249-417-11	CARBON	1K	5%	1/4W	
R352	1-249-438-11	CARBON	56K	5%	1/4W	
R353	1-249-413-11	CARBON	470	5%	1/4W	(E)
R353	1-249-414-11	CARBON	560	5%	1/4W	(AEP)
R354	1-249-438-11	CARBON	56K	5%	1/4W	
R355	1-217-156-00	RES, METAL PLATE			0.22	
⚠R356	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R357	1-249-417-11	CARBON	1K	5%	1/4W	
R358	1-249-431-11	CARBON	15K	5%	1/4W	
R359	1-249-441-11	CARBON	100K	5%	1/4W	
R360	1-249-437-11	CARBON	47K	5%	1/4W	
R371	1-249-417-11	CARBON	1K	5%	1/4W	
R372	1-249-441-11	CARBON	100K	5%	1/4W	
R373	1-249-426-11	CARBON	5.6K	5%	1/4W	
R374	1-249-439-11	CARBON	68K	5%	1/4W	
R375	1-249-401-11	CARBON	47	5%	1/4W	
R376	1-249-402-11	CARBON	56	5%	1/4W	
R502	1-249-393-11	CARBON	10	5%	1/4W	
R602	1-249-429-11	CARBON	10K	5%	1/4W	
R603	1-249-441-11	CARBON	100K	5%	1/4W	
R604	1-249-437-11	CARBON	47K	5%	1/4W	
R605	1-249-430-11	CARBON	12K	5%	1/4W	
⚠R606	1-215-891-11	METAL OXIDE	680	5%	2W	F
R607	1-249-429-11	CARBON	10K	5%	1/4W	
R608	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R610	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
⚠R611	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R612	1-249-421-11	CARBON	2.2K	5%	1/4W	
R613	1-249-433-11	CARBON	22K	5%	1/4W	
R621	1-249-435-11	CARBON	33K	5%	1/4W	(E)
R622	1-249-431-11	CARBON	15K	5%	1/4W	
R711	1-249-435-11	CARBON	33K	5%	1/4W	
R712	1-249-435-11	CARBON	33K	5%	1/4W	
R713	1-249-435-11	CARBON	33K	5%	1/4W	
R714	1-249-435-11	CARBON	33K	5%	1/4W	
R715	1-249-435-11	CARBON	33K	5%	1/4W	
R716	1-249-435-11	CARBON	33K	5%	1/4W	
R717	1-249-435-11	CARBON	33K	5%	1/4W	
R718	1-249-435-11	CARBON	33K	5%	1/4W	
R719	1-249-435-11	CARBON	33K	5%	1/4W	
R721	1-249-433-11	CARBON	22K	5%	1/4W	
R722	1-249-441-11	CARBON	100K	5%	1/4W	
R731	1-249-435-11	CARBON	33K	5%	1/4W	
R732	1-249-435-11	CARBON	33K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MAIN PANEL MICRO COMPUTER SWITCH

Ref.No.	Part No.	Description	Remark
R733	1-249-435-11	CARBON 33K 5% 1/4W	(E)
R734	1-249-435-11	CARBON 33K 5% 1/4W	
R735	1-249-435-11	CARBON 33K 5% 1/4W	
R736	1-249-435-11	CARBON 33K 5% 1/4W	(E)
R741	1-249-417-11	CARBON 1K 5% 1/4W	
R742	1-249-417-11	CARBON 1K 5% 1/4W	
R745	1-249-417-11	CARBON 1K 5% 1/4W	
R746	1-249-417-11	CARBON 1K 5% 1/4W	

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Ref.No.	Part No.	Description	Remark
*	A-4345-843-A	PANEL BOARD, COMPLETE (E)	
*	A-4347-912-A	PANEL BOARD, COMPLETE (AEP) MICRO COMPUTER BOARD SWITCH BOARD	

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Ref.No.	Part No.	Description	Remark
*	4-948-458-01	HOLDER (TA), FL	

< CAPACITOR >

Ref.No.	Part No.	Description	Remark
C502	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C503	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C504	1-130-489-00	MYLAR 0.033uF 5% 50V	
C505	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C506	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C507	1-164-159-11	CERAMIC 0.1uF 50V	
C510	1-124-994-11	ELECT 100uF 20% 10V	
C511	1-124-994-11	ELECT 100uF 20% 10V	
C512	1-125-486-11	DOUBLE LAYERS 0.22F 5.5V	
C513	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C514	1-164-159-11	CERAMIC 0.1uF 50V	
C515	1-124-589-11	ELECT 47uF 20% 16V	
C516	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C518	1-162-282-31	CERAMIC 100PF 10% 50V	
C519	1-126-059-11	ELECT 10uF 20% 50V	
C523	1-126-059-11	ELECT 10uF 20% 50V	
C531	1-164-066-11	CERAMIC 68PF 5% 50V	
C532	1-161-379-00	CERAMIC 0.01uF 20% 25V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
* CN501	1-568-839-11	SOCKET, CONNECTOR 23P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D501	8-719-987-63	DIODE 1N4148M	
D502	8-719-987-63	DIODE 1N4148M	
D503	8-719-987-63	DIODE 1N4148M	
D504	8-719-987-63	DIODE 1N4148M	
D506	8-719-987-63	DIODE 1N4148M	
D507	8-719-987-63	DIODE 1N4148M	
D510	8-719-210-21	DIODE 11EQS04	
D511	8-719-200-82	DIODE 11ES2	
D512	8-719-200-82	DIODE 11ES2	
D513	8-719-200-82	DIODE 11ES2	
D514	8-719-200-82	DIODE 11ES2	
D515	8-719-200-82	DIODE 11ES2	
D516	8-719-301-49	LED SEL2810A	
D517	8-719-301-49	LED SEL2810A	
D520	8-719-301-49	LED SEL2810A	
D521	8-719-301-49	LED SEL2810A	
D523	8-719-313-69	DIODE SEL3210S-CD (E)	
D523	8-719-987-63	DIODE 1N4148M (AEP)	
D524	8-719-313-69	DIODE SEL3210S-CD (E)	
D524	8-719-987-63	DIODE 1N4148M (AEP)	

< INDICATOR TUBE >

Ref.No.	Part No.	Description	Remark
FL501	1-519-701-11	INDICATOR TUBE, FLUORESCENT	

< IC >

Ref.No.	Part No.	Description	Remark
IC501	8-759-635-63	IC M51943BSL	
IC502	8-759-047-13	IC uPD75108CW-C81	
IC503	8-759-987-16	IC LM393P	
IC504	8-759-045-48	IC M66004MIFP	
IC506	8-759-635-63	IC M51943BSL	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q501	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q502	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q503	8-729-900-36	TRANSISTOR DTC124ES	
Q504	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R501	1-249-433-11	CARBON 22K 5% 1/4W	
R503	1-249-405-11	CARBON 100 5% 1/4W	
R504	1-249-417-11	CARBON 1K 5% 1/4W	
R505	1-249-429-11	CARBON 10K 5% 1/4W	
R507	1-249-417-11	CARBON 1K 5% 1/4W	
R508	1-249-429-11	CARBON 10K 5% 1/4W	
R509	1-249-441-11	CARBON 100K 5% 1/4W	
R510	1-249-441-11	CARBON 100K 5% 1/4W	
R511	1-249-433-11	CARBON 22K 5% 1/4W	
R512	1-249-433-11	CARBON 22K 5% 1/4W	
R513	1-249-433-11	CARBON 22K 5% 1/4W	
R514	1-249-417-11	CARBON 1K 5% 1/4W	
R515	1-249-417-11	CARBON 1K 5% 1/4W	
R516	1-249-417-11	CARBON 1K 5% 1/4W	
R517	1-249-437-11	CARBON 47K 5% 1/4W	
R518	1-249-433-11	CARBON 22K 5% 1/4W	

PANEL MICRO COMPUTER SWITCH PIN JACK

Ref. No.	Part No.	Description	Remark
R519	1-249-433-11	CARBON 22K 5% 1/4W	
R520	1-249-417-11	CARBON 1K 5% 1/4W	
R521	1-249-417-11	CARBON 1K 5% 1/4W	
R522	1-249-417-11	CARBON 1K 5% 1/4W	
R523	1-249-417-11	CARBON 1K 5% 1/4W	
R524	1-249-429-11	CARBON 10K 5% 1/4W	
R525	1-249-405-11	CARBON 100 5% 1/4W	
R526	1-249-414-11	CARBON 560 5% 1/4W	
R527	1-249-417-11	CARBON 1K 5% 1/4W	
R528	1-249-429-11	CARBON 10K 5% 1/4W	
R529	1-249-417-11	CARBON 1K 5% 1/4W	
R530	1-249-417-11	CARBON 1K 5% 1/4W	
R531	1-249-417-11	CARBON 1K 5% 1/4W	
R532	1-249-429-11	CARBON 10K 5% 1/4W	
R533	1-249-417-11	CARBON 1K 5% 1/4W	
R534	1-249-417-11	CARBON 1K 5% 1/4W	
R536	1-249-437-11	CARBON 47K 5% 1/4W	
R537	1-249-437-11	CARBON 47K 5% 1/4W	
R538	1-249-437-11	CARBON 47K 5% 1/4W	
R539	1-247-893-11	CARBON 390K 5% 1/4W	
R540	1-249-437-11	CARBON 47K 5% 1/4W	
R541	1-249-437-11	CARBON 47K 5% 1/4W	
R542	1-249-437-11	CARBON 47K 5% 1/4W	
R543	1-249-437-11	CARBON 47K 5% 1/4W	
R544	1-249-437-11	CARBON 47K 5% 1/4W	
R545	1-249-433-11	CARBON 22K 5% 1/4W	
R546	1-249-433-11	CARBON 22K 5% 1/4W	
R547	1-249-433-11	CARBON 22K 5% 1/4W	
R548	1-249-417-11	CARBON 1K 5% 1/4W	
R550	1-249-433-11	CARBON 22K 5% 1/4W	
R551	1-249-433-11	CARBON 22K 5% 1/4W	
R552	1-249-433-11	CARBON 22K 5% 1/4W	
R553	1-249-433-11	CARBON 22K 5% 1/4W	
R554	1-249-433-11	CARBON 22K 5% 1/4W	
R555	1-249-433-11	CARBON 22K 5% 1/4W	
R556	1-249-410-11	CARBON 270 5% 1/4W	
R557	1-249-410-11	CARBON 270 5% 1/4W	
R560	1-249-410-11	CARBON 270 5% 1/4W	
R561	1-249-410-11	CARBON 270 5% 1/4W	
R562	1-249-433-11	CARBON 22K 5% 1/4W	
R563	1-249-433-11	CARBON 22K 5% 1/4W	
R564	1-249-413-11	CARBON 470 5% 1/4W	(E)
R564	1-249-435-11	CARBON 33K 5% 1/4W	(AEP)
R565	1-249-413-11	CARBON 470 5% 1/4W	(E)
R565	1-249-435-11	CARBON 33K 5% 1/4W	(AEP)
R566	1-249-417-11	CARBON 1K 5% 1/4W	
R567	1-249-405-11	CARBON 100 5% 1/4W	
R570	1-249-417-11	CARBON 1K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
R571	1-249-417-11	CARBON 1K 5% 1/4W	
R572	1-249-417-11	CARBON 1K 5% 1/4W	
R573	1-249-434-11	CARBON 27K 5% 1/4W	
R575	1-249-433-11	CARBON 22K 5% 1/4W	
R591	1-249-429-11	CARBON 10K 5% 1/4W	
R592	1-249-417-11	CARBON 1K 5% 1/4W	

< SWITCH >

S501	1-554-303-21	SWITCH, TACTILE (BALANCE)
S502	1-554-303-21	SWITCH, TACTILE (TREBLE)
S503	1-554-303-21	SWITCH, TACTILE (BASS)
S504	1-554-303-21	SWITCH, TACTILE (BASS SYNTHESIZER)
S505	1-554-303-21	SWITCH, TACTILE (▶)
S506	1-554-303-21	SWITCH, TACTILE (◀)

< VIBRATOR >

X501	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)

****

* A-4345-841-A PIN JACK BOARD, COMPLETE

****

< CAPACITOR >

C101	1-126-161-11	ELECT 2.2uF 20% 50V
C102	1-110-335-11	MYLAR 100PF 5% 50V
C103	1-110-335-11	MYLAR 100PF 5% 50V
C104	1-126-022-11	ELECT 47uF 20% 16V
C105	1-130-480-00	MYLAR 0.0056uF 5% 50V
C106	1-106-347-00	MYLAR 1500PF 5% 200V
C107	1-136-171-00	FILM 0.33uF 5% 50V
C108	1-126-022-11	ELECT 47uF 20% 16V
C151	1-126-161-11	ELECT 2.2uF 20% 50V
C152	1-110-335-11	MYLAR 100PF 5% 50V
C153	1-110-335-11	MYLAR 100PF 5% 50V
C154	1-126-022-11	ELECT 47uF 20% 16V
C155	1-130-480-00	MYLAR 0.0056uF 5% 50V
C156	1-106-347-00	MYLAR 1500PF 5% 200V
C157	1-136-171-00	FILM 0.33uF 5% 50V
C158	1-126-022-11	ELECT 47uF 20% 16V

< CONNECTOR >

* CN103	1-691-004-11	PLUG, CONNECTOR (PC BOARD) 13P (SYSTEM CONTROL 1)
CN104	1-565-259-11	JACK, PIN 4P (DAT)
CN105	1-565-259-11	JACK, PIN 4P (AUX/PHONO)

< IC >

IC101	8-759-636-74	IC M5218AP-22

PIN JACK POWER

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R101	1-249-417-11	CARBON 1K 5% 1/4W	
R102	1-247-903-00	CARBON 1M 5% 1/4W	
R111	1-249-413-11	CARBON 470 5% 1/4W	
R112	1-247-903-00	CARBON 1M 5% 1/4W	
R113	1-249-417-11	CARBON 1K 5% 1/4W	
R114	1-247-903-00	CARBON 1M 5% 1/4W	
R115	1-249-417-11	CARBON 1K 5% 1/4W	
R116	1-247-903-00	CARBON 1M 5% 1/4W	
R117	1-249-417-11	CARBON 1K 5% 1/4W	
R118	1-249-438-11	CARBON 56K 5% 1/4W	
R119	1-247-897-11	CARBON 560K 5% 1/4W	
R120	1-249-417-11	CARBON 1K 5% 1/4W	
R121	1-247-897-11	CARBON 560K 5% 1/4W	
R122	1-249-437-11	CARBON 47K 5% 1/4W	
R123	1-249-441-11	CARBON 100K 5% 1/4W	
R125	1-249-409-11	CARBON 220 5% 1/4W	
R151	1-249-417-11	CARBON 1K 5% 1/4W	
R152	1-247-903-00	CARBON 1M 5% 1/4W	
R161	1-249-413-11	CARBON 470 5% 1/4W	
R162	1-247-903-00	CARBON 1M 5% 1/4W	
R163	1-249-417-11	CARBON 1K 5% 1/4W	
R164	1-247-903-00	CARBON 1M 5% 1/4W	
R165	1-249-417-11	CARBON 1K 5% 1/4W	
R166	1-247-903-00	CARBON 1M 5% 1/4W	
R167	1-249-417-11	CARBON 1K 5% 1/4W	
R168	1-249-438-11	CARBON 56K 5% 1/4W	
R169	1-247-897-11	CARBON 560K 5% 1/4W	
R170	1-249-417-11	CARBON 1K 5% 1/4W	
R171	1-247-897-11	CARBON 560K 5% 1/4W	
R172	1-249-437-11	CARBON 47K 5% 1/4W	
R173	1-249-441-11	CARBON 100K 5% 1/4W	
R175	1-249-409-11	CARBON 220 5% 1/4W	

****

Ref. No.	Part No.	Description	Remark
*	A-4347-904-A	POWER BOARD, COMPLETE (E)	
*	A-4347-908-A	POWER BOARD, COMPLETE (AEP)	
		**************************	
*	1-533-213-31	HOLDER, FUSE	
		< CAPACITOR >	
C802	1-126-059-11	ELECT 10uF 20% 50V	
C803	1-126-059-11	ELECT 10uF 20% 50V	
C804	1-126-059-11	ELECT 10uF 20% 50V	
C805	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C807	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C808	1-161-379-00	CERAMIC 0.01uF 20% 25V	

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
* CN801	1-564-505-11	PLUG, CONNECTOR 2P	
* CN802	1-564-506-11	PLUG, CONNECTOR 3P	
		< JACK >	
⚠CNJ1	1-526-794-11	OUTLET, AC (AEP)	
⚠CNJ1	1-540-038-11	OUTLET, AC (NONPOLAR) (1P)(E)	
		< CONNECTOR >	
* CNP1	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P	
* CNP2	1-564-321-21	PIN, CONNECTOR 2P	
* CNP3	1-564-321-00	PIN, CONNECTOR 2P	
CNP4	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P (AEP)	
		< DIODE >	
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-010-54	DIODE UZ-7.5BSB	
D804	8-719-010-26	DIODE UZ-3.9BSB	
D805	8-719-010-42	DIODE UZ-5.6BSB	
		< IC >	
IC801	8-759-984-03	IC LM339N	
		< TRANSISTOR >	
Q801	8-729-140-93	TRANSISTOR 2SB733-34	
Q802	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	
R801	1-247-903-00	CARBON 1M 5% 1/4W	
R804	1-249-417-11	CARBON 1K 5% 1/4W	
R811	1-249-417-11	CARBON 1K 5% 1/4W	
R812	1-247-731-11	CARBON 22 5% 1/2W	
R813	1-249-433-11	CARBON 22K 5% 1/4W	
R814	1-249-400-11	CARBON 39 5% 1/4W	
R815	1-249-433-11	CARBON 22K 5% 1/4W	
R816	1-249-433-11	CARBON 22K 5% 1/4W	
R820	1-249-415-11	CARBON 680 5% 1/4W	
R821	1-249-415-11	CARBON 680 5% 1/4W	
R822	1-249-419-11	CARBON 1.5K 5% 1/4W	
R823	1-247-850-11	CARBON 6.2K 5% 1/4W	
R824	1-247-899-11	CARBON 680K 5% 1/4W	
R828	1-249-418-11	CARBON 1.2K 5% 1/4W	
R829	1-247-850-11	CARBON 6.2K 5% 1/4W	
R830	1-247-899-11	CARBON 680K 5% 1/4W	
R831	1-247-832-11	CARBON 1.1K 5% 1/4W	
R832	1-249-427-11	CARBON 6.8K 5% 1/4W	
R833	1-247-899-11	CARBON 680K 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

POWER　POWER SW　RELAY　SENSOR　SIRCS　SP RELAY

Ref. No.	Part No.	Description				Remark
R834	1-249-433-11	CARBON	22K	5%	1/4W	
R835	1-249-417-11	CARBON	1K	5%	1/4W	
**						
*	1-641-976-11	POWER SW BOARD				
		**************				
		< CAPACITOR >				
⚠C1	1-161-744-00	CERAMIC	0.01uF		400V	
		< SWITCH >				
⚠S1	1-554-920-61	SWITCH, PUSH (AC POWER)(1 KEY)				
**						
*	1-641-979-11	RELAY BOARD				
		***********				
		< CAPACITOR >				
C306	1-164-159-11	CERAMIC	0.1uF		50V	
C308	1-164-159-11	CERAMIC	0.1uF		50V	
C356	1-164-159-11	CERAMIC	0.1uF		50V	
C358	1-164-159-11	CERAMIC	0.1uF		50V	
		< DIODE >				
D604	8-719-987-63	DIODE	1N4148M			
D605	8-719-987-63	DIODE	1N4148M			
		< COIL >				
L301	1-420-872-00	COIL, AIR CORE				
L351	1-420-872-00	COIL, AIR CORE				
		< RESISTOR >				
R311	1-249-397-11	CARBON	22	5%	1/4W	
R312	1-247-727-11	CARBON	10	5%	1/2W	
R313	1-249-397-11	CARBON	22	5%	1/4W	
R361	1-249-397-11	CARBON	22	5%	1/4W	
R362	1-247-727-11	CARBON	10	5%	1/2W	
R363	1-249-397-11	CARBON	22	5%	1/4W	
		< RELAY >				
RY301	1-515-765-11	RELAY				
**						

Ref. No.	Part No.	Description				Remark
*	1-641-969-11	SENSOR BOARD				
		************				
		< CAPACITOR >				
C801	1-161-379-00	CERAMIC	0.01uF	20%	25V	
		< IC >				
IC802	8-759-512-73	IC	LM35DZ-SL			
		< TRANSISTOR >				
Q804	8-729-281-52	TRANSISTOR	2SC1815-Y			
		< RESISTOR >				
R842	1-249-426-11	CARBON	5.6K	5%	1/4W	
**						
*	1-641-973-11	SIRCS BOARD				
		***********				
		< CAPACITOR >				
C517	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
* CN505	1-560-531-00	PIN, CONNECTOR 5P				
		< DIODE >				
D522	8-719-301-49	LED	SEL2810A			
		< IC >				
IC507	8-749-922-36	IC	GP1U50XB			
		< RESISTOR >				
R574	1-249-414-11	CARBON	560	5%	1/4W	
R576	1-249-417-11	CARBON	1K	5%	1/4W	
		< SWITCH >				
S507	1-554-303-21	SWITCH, TACTILE (SOURCE DIRECT)				
**						
*	1-641-978-11	SP RELAY BOARD				
		**************				
**						

The components identified by
mark ⚠ or dotted line with mark
⚠ are critical for safety.
Replace only with part number
specified.

SP TERMINAL VOLUME

Ref. No.	Part No.	Description	Remark
*	1-641-981-11	SP TERMINAL BOARD *****************	
		< TERMINAL >	
TM301	1-536-571-31	TERMINAL BOARD (4P) (SPEAKER)(E)	
TM301	1-536-571-41	TERMINAL BOARD (4P) (SPEAKER)(AEP)	

****

Ref. No.	Part No.	Description	Remark
*	1-641-974-11	VOLUME BOARD ************	
		< CAPACITOR >	
C520	1-124-994-11	ELECT 100uF 20% 10V	
C521	1-124-994-11	ELECT 100uF 20% 10V	
C522	1-136-169-00	FILM 0.22uF 5% 50V	
		< CONNECTOR >	
* CN503	1-568-826-11	SOCKET, CONNECTOR 7P	
		< DIODE >	
D508	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC505	8-759-820-62	IC LB1639	
		< RESISTOR >	
R549	1-247-840-00	CARBON 2.4K 5% 1/4W	
R580	1-249-433-11	CARBON 22K 5% 1/4W	
R581	1-249-433-11	CARBON 22K 5% 1/4W	
R582	1-249-417-11	CARBON 1K 5% 1/4W	
R583	1-247-903-00	CARBON 1M 5% 1/4W	
		< VARIABLE RESISTOR >	
RV501	1-241-922-11	RES, VAR, CARBON 10K/100K/100K (VOLUME)	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
12	1-590-238-31	WIRE, FLAT TYPE (7 CORE)	
13	1-575-664-31	WIRE, FLAT TYPE (23 CORE)	
⚠68	1-575-651-71	CORD, POWER (AEP)	
⚠68	1-575-656-21	CORD, POWER (E)	
⚠F1	1-532-203-00	FUSE (2A/250V) (AEP, E:220-230V)	
⚠F1	1-532-237-00	FUSE, TIME LAG (3.15A/250V) (E:120V)	
⚠F2	1-532-203-00	FUSE (2A/250V) (AEP)	
M901	X-4942-029-1	CASE ASSY, FAN	
⚠T601	1-450-944-11	TRANSFORMER, POWER (AEP, E:220-230V)	
⚠T601	1-450-946-11	TRANSFORMER, POWER (E:120V)	

****

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS ******************************	
	1-690-353-11	CORD (WITH CONNECTOR) 13P (AEP)	
	2-352-555-01	CUSHION (AEP)	
	3-754-418-11	MANUAL, INSTRUCTION (AEP) (ENGLISH/FRENCH/SPANISH/PORTUGUESE)	
	3-754-418-41	MANUAL, INSTRUCTION (AEP) (GERMAN/DUTCH/SWEDISH/ITALIAN)	
*	4-948-201-01	CUSHION	
*	4-952-537-01	INDIVIDUAL CARTON (AEP)	

****

Ref. No.	Part No.	Description	Remark
		************* HARDWARE LIST *************	
#1	7-685-646-01	SCREW +BVTP 3X8 TYPE1	
#2	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#3	7-682-551-09	SCREW +BVTT 3X14 (S)	
#4	7-682-549-09	SCREW +BVTT 3X10 (S)	
#5	7-682-549-04	SCREW (M3X10), S TITE, + BTT	
#6	7-682-560-04	SCREW +BVTT 4X6 (S)	
#7	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#8	7-621-849-00	SCREW (BV/RING)	
#9	7-682-547-04	SCREW +BVTT 3X6 (S)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

9-956-762-11

Sony Corporation
Audio Group

English
92D1860-1
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TA-VF1

SONY
SERVICE MANUAL

AEP Model
E Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject : Addition to Germany model

The model for Germany have been added to TA-VF1.
Germany model is almost same as the AEP model and only the difference from AEP model is described this manual.
Refer to the TA-VF1 (AEP model) SERVICE MANUAL for the other information.

EXPLODED VIEWS

(page 23)

No.		Part No.	Description
17	*	4-953-955-01	COVER (UPPER) (Germany)

(page 24)

No.		Part No.	Description
53	*	A-4347-905-A	MAIN BOARD, COMPLETE (Germany)
65	*	A-4347-906-A	PIN JACK BOARD, COMPLETE (Germany)
66	*	4-947-626-31	PANEL, BACK (Germany)
F2	⚠	1-532-203-00	FUSE (2A/250V) (Germany)

NOTE :
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Audio Group

English
9211822-1
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ELECTRICAL PARTS LIST

NOTE :

- RESISTORS
  All resistors are in ohms
- CAPACITORS
  uF : μF
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

MAIN BOARD (page 25,26)

No.		Part No.	Description
	*	A-4347-905-A	MAIN BOARD, COMPLETE (Germany)
C319		1-162-294-31	CERAMIC 0.001uF 10% 50V (Germany)

PIN JACK BOARD (page 30,31)

No.		Part No.	Description
	*	A-4347-906-A	PIN JACK BOARD, COMPLETE (Germany)
C103		1-164-075-11	CERAMIC 150pF 10% 50V (Germany)
C153		1-164-075-11	CERAMIC 150pF 10% 50V (Germany)
C110		1-164-077-11	CERAMIC 220pF 10% 50V (Germany)
C131		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C132		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C133		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C134		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C160		1-164-077-11	CERAMIC 220pF 10% 50V (Germany)
C181		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C182		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C183		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
C184		1-162-286-31	CERAMIC 220pF 10% 50V (Germany)
R126		1-249-417-11	CARBON 1K 5% 1/4W (Germany)
R176		1-249-417-11	CARBON 1K 5% 1/4W (Germany)

SP TERMINAL BOARD (page 33)

No.	Part No.	Description
C309	1-164-159-11	CERAMIC 0.1uF 50V (Germany)
C310	1-164-159-11	CERAMIC 0.1uF 50V (Germany)
C320	1-161-377-11	CERAMIC 0.0047uF 20% 50V (Germany)
C359	1-164-159-11	CERAMIC 0.1uF 50V (Germany)
C360	1-164-159-11	CERAMIC 0.1uF 50V (Germany)
L302	1-420-872-00	COIL, AIR CORE (Germany)
L352	1-420-872-00	COIL, AIR CORE (Germany)
R314	1-247-727-11	CARBON 10 5% 1/2W (Germany)
R364	1-247-727-11	CARBON 10 5% 1/2W (Germany)

PRINTED WIRING BOARDS

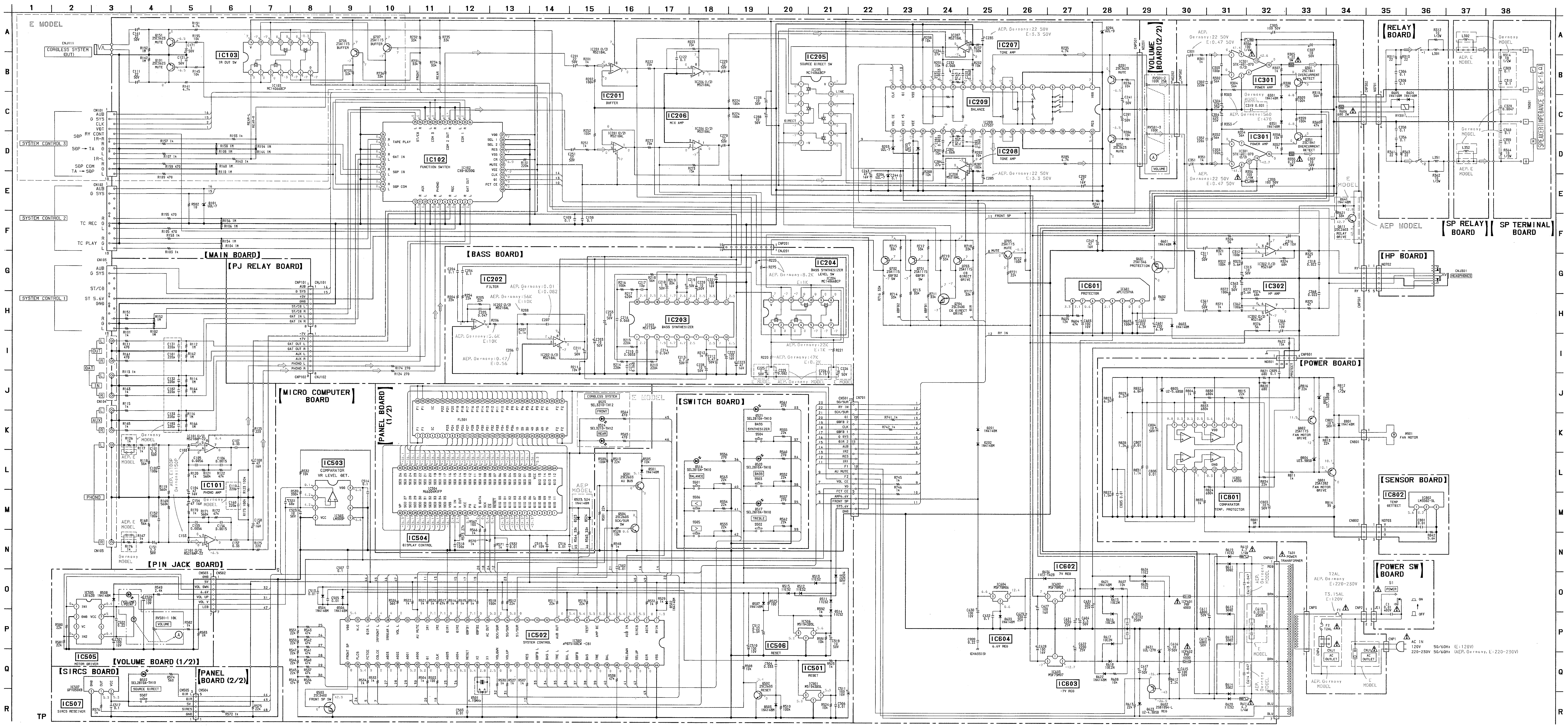
- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	F-8	D804	D-20
D201	J-12	D805	C-19
D202	J-12		
D203	I-5	IC101	C-4
D204	J-11	IC102	D-10
D205	I-5	IC103	F-11
D206	I-12	IC201	F-9
D301	G-13	IC202	H-5
D351	G-13	IC203	G-4
D501	F-23	IC204	F-5
D502	F-23	IC205	G-10
D503	F-23	IC206	F-10
D504	F-23	IC207	J-10
D506	G-25	IC208	H-10
D507	F-26	IC209	I-11
D508	B-14	IC301	E-14
D510	F-26	IC302	J-13
D511	F-26	IC501	F-25
D512	F-26	IC502	G-24
D513	F-26	IC503	H-26
D514	G-26	IC504	I-30
D515	F-26	IC505	B-13
D516	H-21	IC506	G-25
D517	I-21	IC507	G-30
D520	J-21	IC601	F-15
D521	J-21	IC602	J-18
D522	F-30	IC603	J-18
D523	I-25	IC604	J-17
D524	I-25	IC801	C-19
D601	H-13	IC802	D-24
D603	F-15		
D604	G-20	Q101	E-12
D605	G-20	Q151	E-12
D611	H-15	Q201	H-12
D612	H-15	Q251	H-11
D613	G-15	Q301	G-13
D614	H-15	Q351	G-13
D615	I-17	Q501	F-22
D616	J-17	Q502	F-23
D617	J-17	Q503	H-26
D618	J-17	Q504	G-23
D619	I-16	Q601	H-13
D620	I-16	Q602	I-17
D621	I-14	Q611	I-13
D622	I-14	Q701	H-9
D623	I-16	Q702	H-9
D631	I-18	Q703	H-9
D633	J-16	Q704	H-9
D634	I-16	Q705	I-12
D635	J-16	Q706	G-11
D636	J-17	Q707	H-11
D641	H-11	Q801	C-20
D802	B-20	Q802	D-19
D802	D-20	Q804	D-23

PIN JACK BOARD
PJ RELAY BOARD
MAIN BOARD
E MODEL
VOLUME BOARD
POWER BOARD
POWER SW BOARD
SENSOR BOARD
FL501 FLUORESCENT INDICATOR TUBE
SP TERMINAL BOARD
SP RELAY BOARD
RELAY BOARD
AEP MODEL
MICRO COMPUTER BOARD
SIRCS BOARD
BASS BOARD
HP BOARD
SWITCH BOARD
PANEL BOARD
Germany MODEL
AEP,E MODEL
AEP,Germany MODEL
M901 FAN MOTOR
T901 POWER TRANSFORMER
MIN
L
R
MAX
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
A
B
C
D
E
F
G
H
I
J
K

Note:
- ○—— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.

SCHEMATIC DIAGRAMS


E MODEL
CORDLESS SYSTEM (OUT)
SYSTEM CONTROL 3
SYSTEM CONTROL 2
SYSTEM CONTROL 1
IC103
IC102
FUNCTION SWITCH
IC201
BUFFER
IC206
MIX AMP
IC205
SOURCE DIRECT SW
IC207
TONE AMP
IC209
BALANCE
IC208
TONE AMP
VOLUME BOARD (2/2)
IC301
POWER AMP
IC301
POWER AMP
RELAY BOARD
SP RELAY BOARD
SP TERMINAL BOARD
SPEAKER IMPEDANCE USE 6-16Ω
AEP MODEL
MAIN BOARD
PJ RELAY BOARD
BASS BOARD
IC202
FILTER
IC203
BASS SYNTHESIZER
IC204
BASS SYNTHESIZER LEVEL SW
IC601
PROTECTION
IC302
HP BOARD
HEADPHONES
POWER BOARD
MICRO COMPUTER BOARD
PANEL BOARD (1/2)
IC503
COMPARATOR VR LEVEL DET.
IC504
DISPLAY CONTROL
SWITCH BOARD
IC101
PHONO AMP
PHONO
AUX
DAT
IC801
COMPARATOR TEMP. PROTECTOR
SENSOR BOARD
IC802
TEMP DETECT
FAN MOTOR
PIN JACK BOARD
IC505
MOTOR DRIVER
SIRCS BOARD
IC507
SIRCS RECEIVER
VOLUME BOARD (1/2)
PANEL BOARD (2/2)
IC502
SYSTEM CONTROL
IC506
RESET
IC501
RESET
IC602
IC604
IC603
POWER SW BOARD
POWER TRANSFORMER
AC IN
TP

Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- ▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PHONO

TA-VF1

SONY
SERVICE MANUAL

AEP Model
E Model

CORRECTION-1

Correct your service manual as shown below.

______ : **indicates corrected portion.**

Page	INCORRECT			CORRECT	
	No.	Part No.	Description	Part No.	Description
23	8	*1-641-976-11	SW BOARD	*1-641-976-11	POWER SW BOARD
	17	*4-948-022-01	COVER (UPPER)	*4-948-022-01	COVER (UPPER) (E)
	17	————		*4-953-955-01	COVER (UPPER) (AEP)
24	F2	⚠1-532-203-00	FUSE (2A/250V) (AEP)	⚠1-576-228-31	FUSE (H.B.C), 2A/250V (AEP)
25		(BASS	BOARD)		
		*A-4347-915-A	BASS BOARD, COMPLETE	*A-4347-915-A	BASS BOARD, COMPLETE (AEP)
				*A-4345-958-A	BASS BOARD, COMPLETE (E)
	C206	1-136-173-00	FILM 0.47μF 5% 50V	1-136-173-00	FILM 0.47μF 5% 50V (AE)
	C206	————		1-136-174-00	FILM 0.56μF 5% 50V (E)
	C207	1-136-157-00	FILM 0.022μF 5% 50V	1-136-153-00	FILM 0.01μF 5% 50V (AE)
	C207	————		1-136-164-00	FILM 0.082μF 5% 50V (E)
	C225	1-136-169-00	FILM 0.22μF 5% 50V	1-136-164-00	FILM 0.082μF 5% 50V (AE)
	C225	————		1-126-301-11	ELECT 1μF 20% 50V (E)
	C226	1-136-169-00	FILM 0.22μF 5% 50V	1-136-167-00	FILM 0.15μF 5% 50V (AE)
				1-126-301-11	ELECT 1μF 20% 50V (E)

Page	INCORRECT			CORRECT	
	No.	Part No.	Description	Part No.	Description
25	R206	1-249-427-11	CARBON 6.8K 5% 1/4W	1-249-426-11	CARBON 5.6K 5% 1/4W (AE)
	R206	————		1-249-429-11	CARBON 10K 5% 1/4W (E)
	R207	1-249-426-11	CARBON 5.6K 5% 1/4W	1-247-848-11	CARBON 5.1K 5% 1/4W
	R208	1-249-433-11	CARBON 22K 5% 1/4W	1-249-438-11	CARBON 56K 5% 1/4W (AE)
	R208	————		1-249-429-11	CARBON 10K 5% 1/4W (E)
	R220	1-249-433-11	CARBON 22K 5% 1/4W	1-249-437-11	CARBON 47K 5% 1/4W (AE)
	R220	————		1-249-428-11	CARBON 8.2K 5% 1/4W (E)
	R221	1-249-430-11	CARBON 12K 5% 1/4W	1-249-433-11	CARBON 22K 5% 1/4W (AE)
	R221	————		1-249-424-11	CARBON 3.9K 5% 1/4W (E)
	R225	1-249-423-11	CARBON 3.3K 5% 1/4W	1-249-428-11	CARBON 8.2K 5% 1/4W (AE)
	R225	————		1-249-417-11	CARBON 1K 5% 1/4W (E)
	R275	1-249-423-11	CARBON 3.3K 5% 1/4W	1-249-428-11	CARBON 8.2K 5% 1/4W (AE)
	R275			1-249-417-11	CARBON 1K 5% 1/4W (E)
26		(MAIN BOARD)			
	C235	1-126-162-11	ELECT 3.3μF 20% 50V	1-126-162-11	ELECT 3.3μF 20% 50V (E)
	C235	————		1-126-233-11	ELECT 22μF 20% 50V (AEP)
	C285	1-126-162-11	ELECT 3.3μF 20% 50V	1-126-162-11	ELECT 3.3μF 20% 50V (E)
	C285	————		1-126-233-11	ELECT 22μF 20% 50V (AEP)
	C301	1-126-300-11	ELECT 0.47μF 20% 50V	1-126-300-11	ELECT 0.47μF 20% 50V (E)
	C301	————		1-126-233-11	ELECT 22μF 20% 50V (AEP)
	C351	1-126-300-11	ELECT 0.47μF 20% 50V	1-126-300-11	ELECT 0.47μF 20% 50V (E)
	C351	————		1-126-233-11	ELECT 22μF 20% 50V (AEP)

Sony Corporation
Audio Group

English
92I1862-1
Printed in Japan
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Published by Customer Relations and Service Group

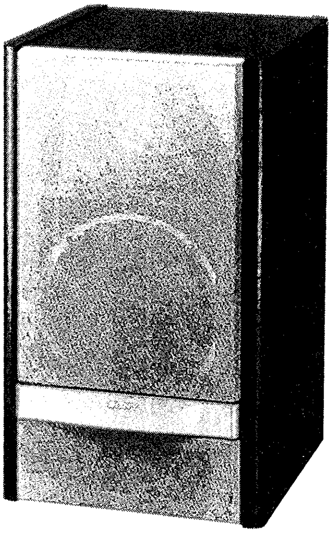
SS-VF3

SERVICE MANUAL

E Model

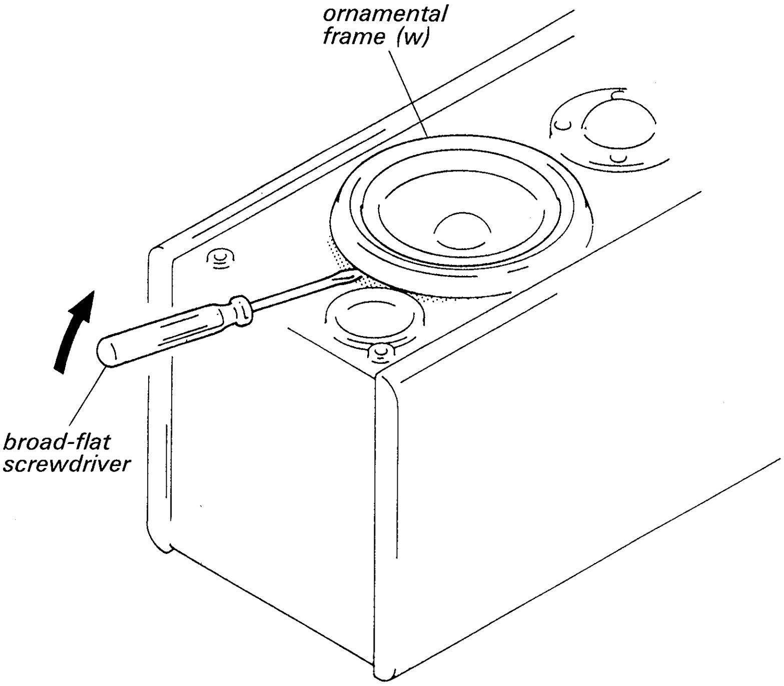
SPECIFICATIONS

Speaker system	2-way speaker system
Weight	Approx. 7.8kg
Dimensions	Approx. 236×400×275 mm (w/h/d, including projections)



This set is speaker system in LBT-VF3.

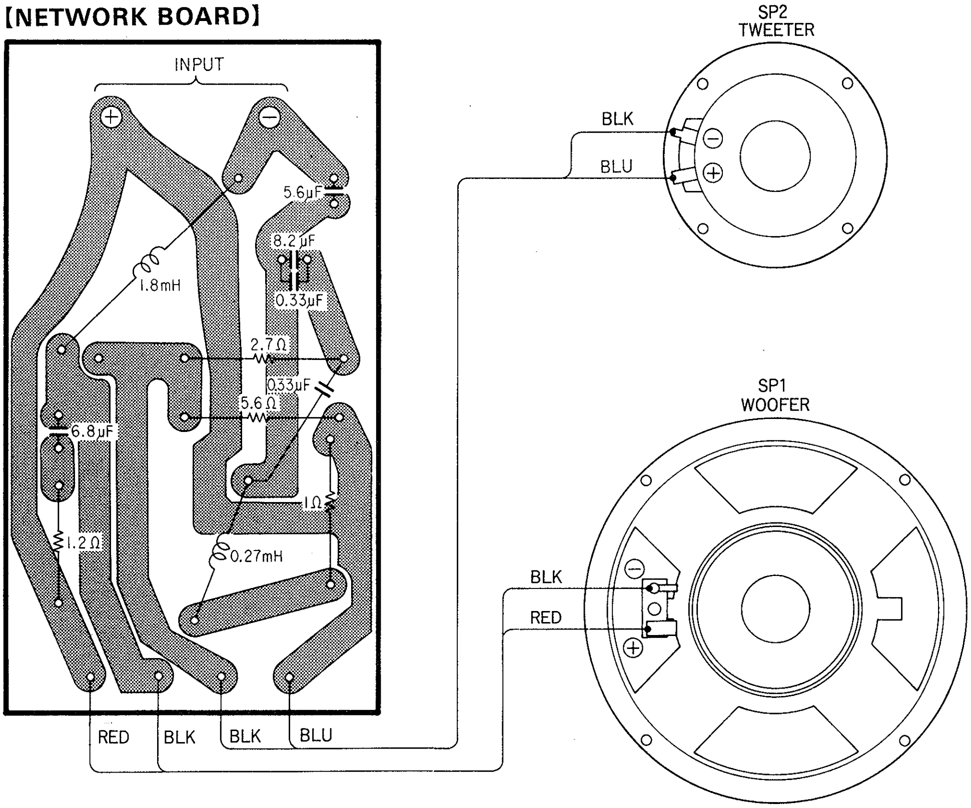
1. REMOVAL OF ORNAMENTAL FRAME (W)


ornamental frame (w)
broad-flat screwdriver

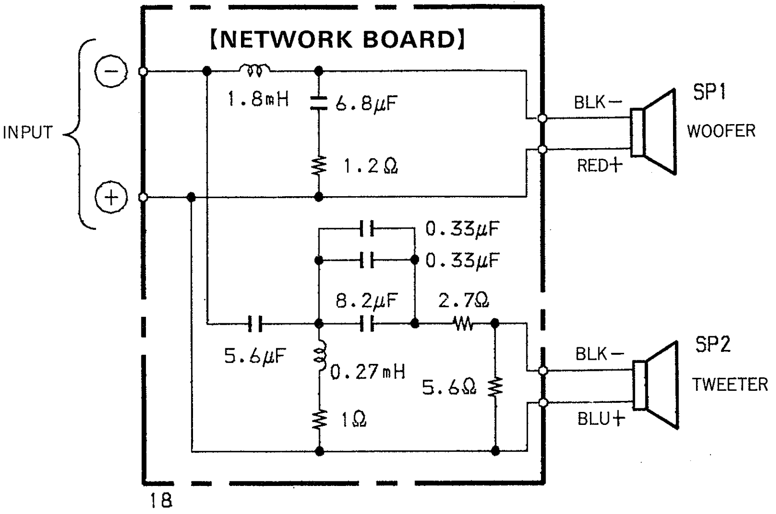
SPEAKER SYSTEM

SONY®

2. PRINTED WIRING BOARD


[NETWORK BOARD]
INPUT
5.6μF
8.2μF
0.33μF
1.8mH
2.7Ω
0.33μF
5.6Ω
6.8μF
1Ω
1.2Ω
0.27mH
RED
BLK
BLK
BLU
SP2
TWEETER
BLK
BLU
SP1
WOOFER
BLK
RED

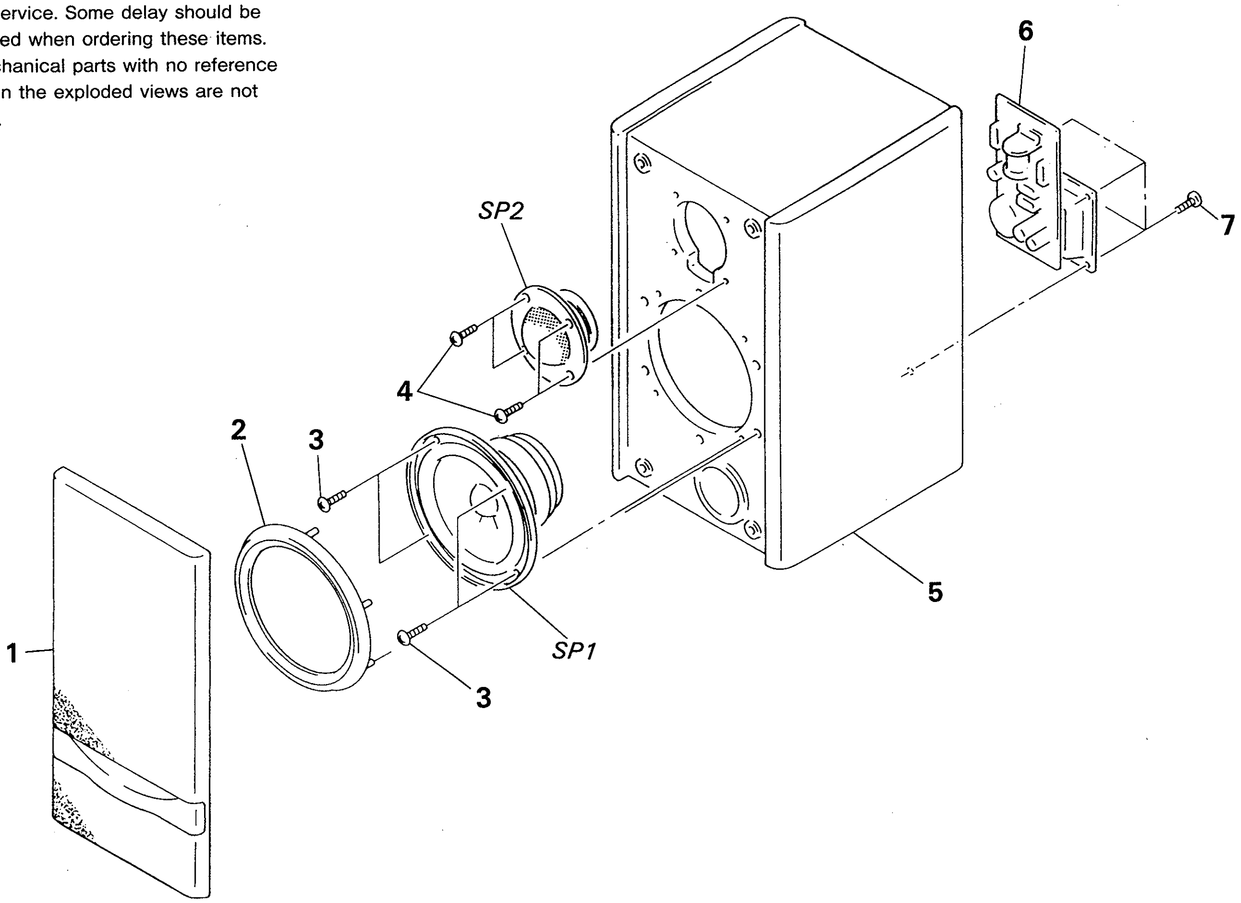
3. SCHEMATIC DIAGRAM


[NETWORK BOARD]
INPUT
1.8mH
6.8μF
1.2Ω
BLK−
RED+
SP1
WOOFER
0.33μF
0.33μF
8.2μF
2.7Ω
5.6μF
0.27mH
5.6Ω
1Ω
BLK−
BLU+
SP2
TWEETER
18

4. EXPLODED VIEW AND PARTS LIST

NOTE:

- Items marked " ＊ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.



No.	Part No.	Description
1	X-4941-896-1	FRAME ASSY, GRILLE
2	X-4941-897-1	FRAME (W) ASSY, ORNAMENTAL
3	4-914-430-21	SCREW (4×20), TAPPING
4	4-949-145-01	SCREW (3.5×18), TAPPING
5	X-4941-894-1	CABINET (L) ASSY, SPEAKER
5	X-4941-895-1	CABINET (R) ASSY, SPEAKER
6	1-589-387-11	NETWORK BOARD, COMPLETE
7	4-874-614-11	SCREW (3.5×14), TAPPING
SP1	1-544-565-11	SPEAKER (160W041) (16CM)
SP2	1-544-566-11	SPEAKER (025D041) (2.5CM)

ACCESSORY & PACKING MATERIAL

	Part No.	Description
*	4-948-602-01	CUSHION
*	4-952-983-01	INDIVIDUAL CARTON

English
92D1814-1
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Published by Customer Relations and Service Group

Sony Corporation
Audio Group

HCD-VF1

SERVICE MANUAL

AEP Model
E Model

This set is the tuner CD player section in LBT-VF3

Model Name Using Similar Mechanism	HCD-H70
CD Mechanism Type	CDM13B-5BD3
Optical Pick-Up Block Type	BU-5BD3

SPECIFICATIONS

Tuner section	
System	FM stereo FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 to 108 MHz
Antenna	75 ohms unbalanced
Intermediate frequency	10.7 MHz
AM tuner section	
Tuning range	531 to 1,602 kHz (at 9 kHz interval) 530 to 1,710 kHz (at 10 kHz interval)
Antenna	AM loop antenna External antenna terminal
Intermediate frequency	450 kHz
CD player section	
Frequency response	2 Hz to 20 kHz ±1 dB
Signal-to-noise ratio	More than 110 dB
Dynamic range	More than 100 dB
Harmonic distortion	Less than 0.008%
Channel separation	More than 95 dB
DIGITAL OUTPUT (OPTICAL) (Optical output connector)	Wave length 660 nm output level −18 dBm
General	
Power requirements	220-230 V AC, 50/60 Hz (South-east Asian AEP, German model) 120 V AC, 50/60 Hz (Latin American model)
Power consumption	14 W
AC outlet	2 switched, total 180 W max.
Weight	Approx. 4.1 kg
Dimensions	Approx. 355 × 79.5 × 296 mm (w/h/d, including projections)

Design and specifications are subject to change without notice.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

MICROFILM

TUNER CD PLAYER

SONY®

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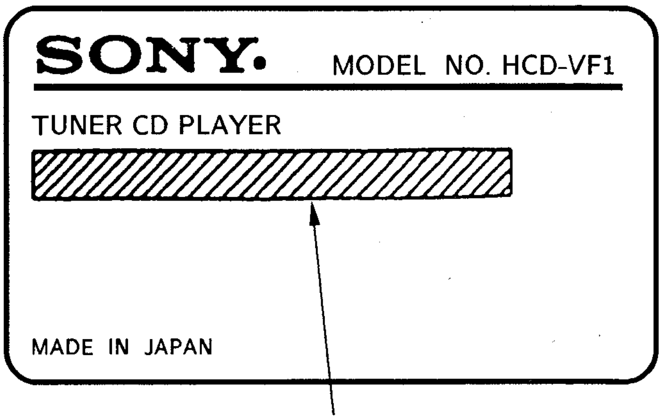
MODEL IDENTIFICATION

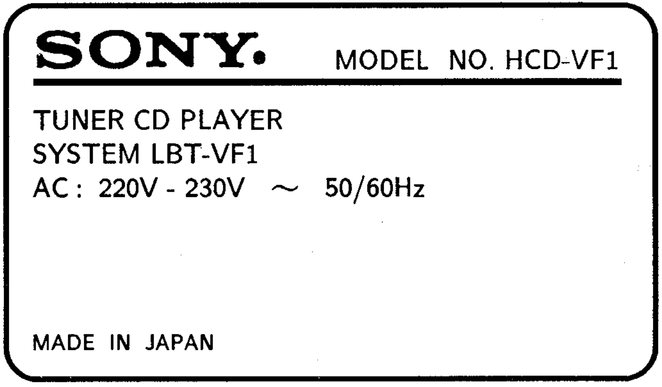
- Specification Labels -

AEP, E MODEL



AEP Model : AC 220 - 230V ~ 50/60Hz
E(120V) Model : AC 120V ~ 14W 50/60Hz
E(220 - 230V) Model : AC 220V - 230V ~ 14W 50/60Hz

Germany MODEL



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 30cm away from the objective lens.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

1-1. LOCATION OF CONTROLS

Location of Controls

Refer to the pages indicated in parenthesis for details.

Tuner CD Player (HCD-VF1)

Tuner section

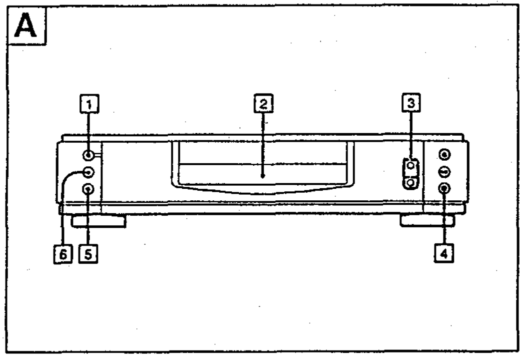
When you press the BAND button, HCD-VF1 works as a tuner.

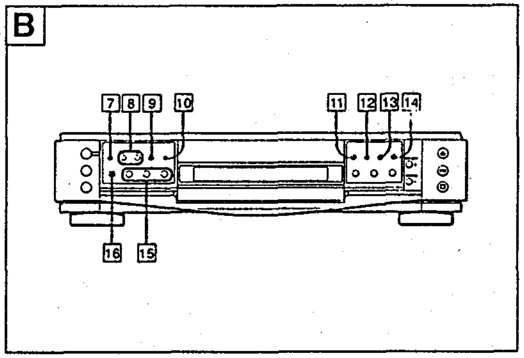
With the door closed (Fig. A)

1 OPEN button
2 Display
3 + and − buttons (24, 26, 28, 30)
4 TUNING/PRESET button (24, 28)
5 SYSTEM POWER button (18, 62)
6 BAND button (24)

With the door opened (Fig. B)

7 CONTROL/CHECK/CLEAR button (62, 64)
8 −/+ buttons (56, 60, 62)
9 NEXT button (56, 62)
10 CLOCK button (56)
11 MEMORY button (26)
12 CHARACTER button (30)
13 SHIFT button (26, 28)
14 STEREO/MONO button (24), ENTER button (26)
This button works as the ENTER button in memory mode. In other modes, it works as the STEREO/MONO button.
15 Numeric buttons for the timer setting (60, 62, 64)
16 SLEEP button (58)





Location of Controls

CD player section

When you press the ►II button, HCD-VF1 works as a CD player.

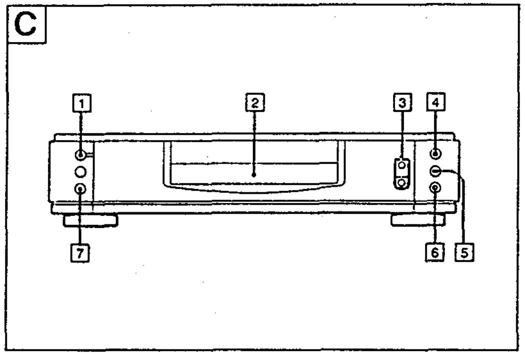
With the door closed (Fig. C)

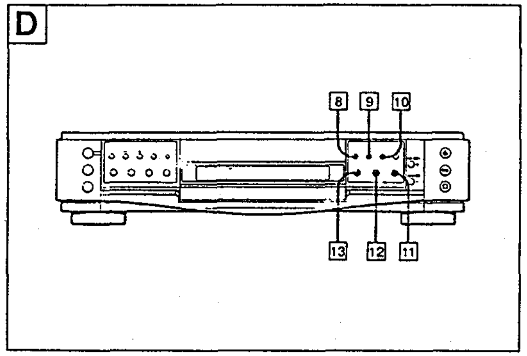
1 OPEN button
2 Display
3 ◄◄ I◄◄ (AMS*/manual search) and ►► ►►I (AMS*(RMS**: in shuffle mode)/manual search) buttons (70, 72, 74, 78)
4 ≜ (Open/Close) button (66)
5 ►II (Play/Pause) button (66)
6 ■ (Stop) button (66)
7 SYSTEM POWER button (18, 62)

With the door opened (Fig. D)

8 CHECK button (80)
9 CLEAR button (80)
10 TIME button (68)
11 PROGRAM button (78)
12 SHUFFLE button (74)
13 CONTINUE button (74, 78)

* AMS is the abbreviation of Automatic Music Sensor.
** RMS is the abbreviation of Random Music Sensor.
(RMS functions only in shuffle mode.)





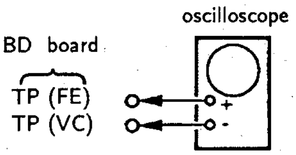
SECTION 2
ELECTRICAL ADJUSTMENTS

CD SECTION

Note :

1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than $10M\Omega$ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

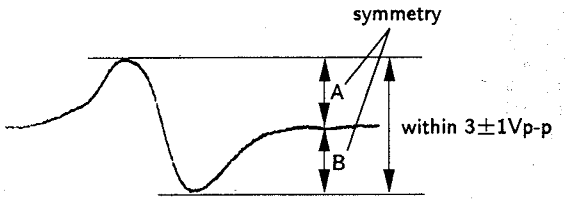
S-Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
4. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1Vp-p.

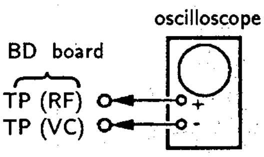
S-curve waveform



5. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check



Procedure :

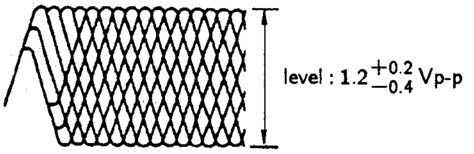
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

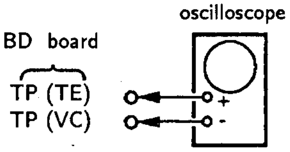
Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform

VOLT/DIV : 200mV
TIME/DIV : 500nS



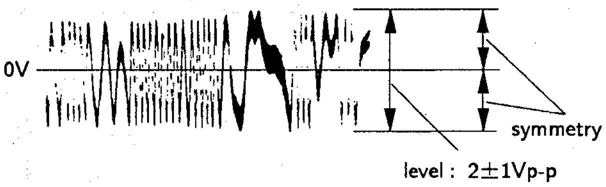
E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) to ground and TP (TEI) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

Traverse oscilloscope

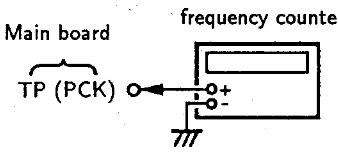


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PCK) with lead wire.


Main board
frequency counter
TP (PCK)
+
-

2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218 MHz.

Focus/Tracking Gain

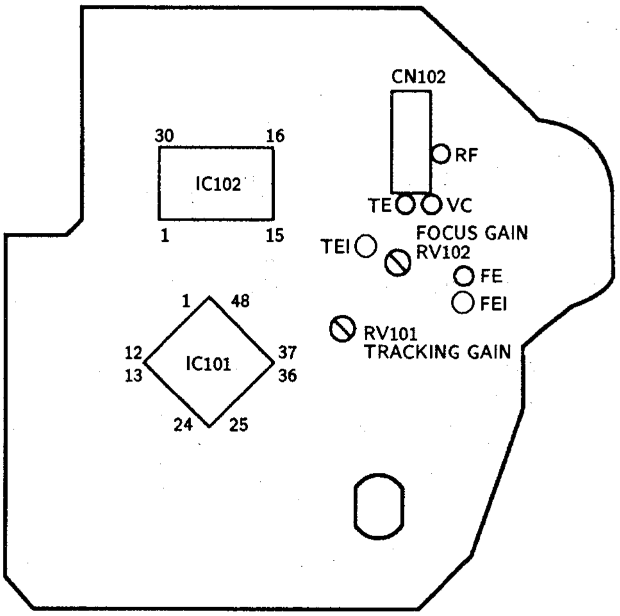
This gain has a margin, so even if it is slightly off. There is no problem.

Therefore, do not perform, this adjustment.

Please note that it should be fixed to mechanical center position when you moved and do not know original position.

【BD BOARD】

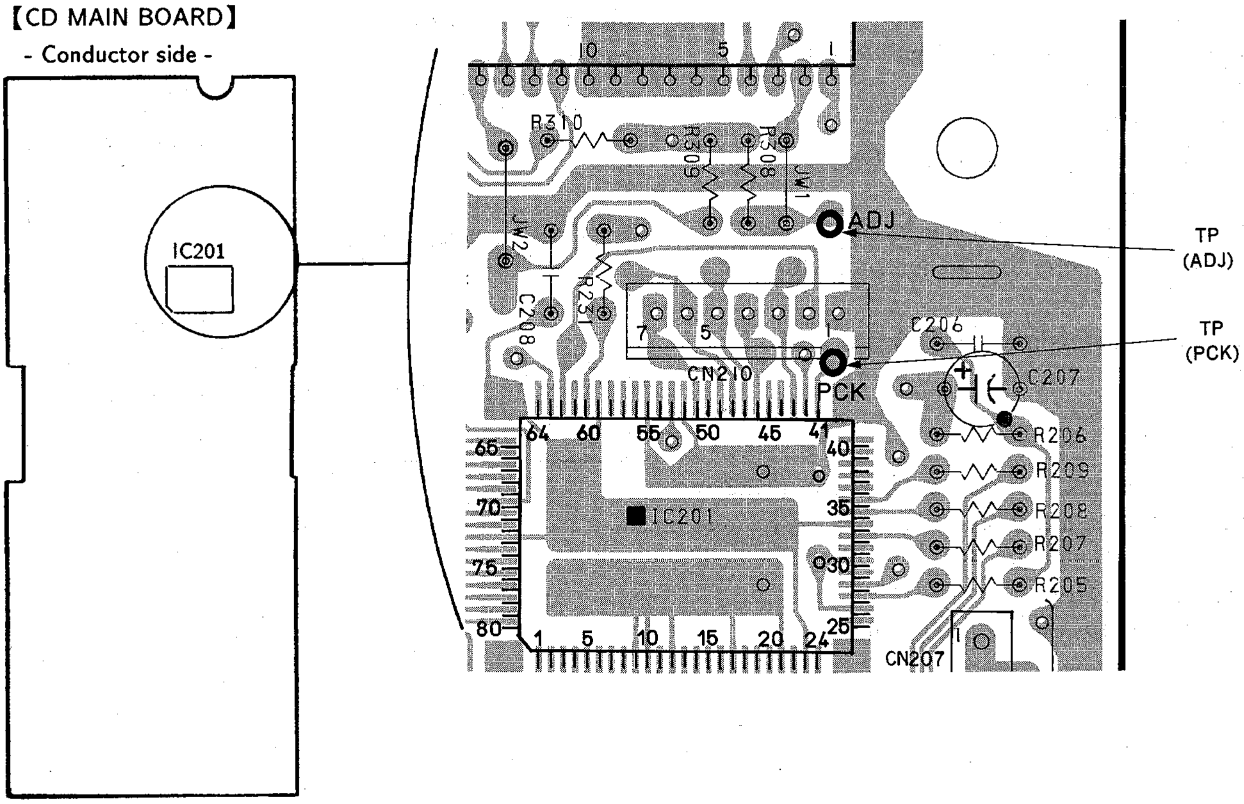
- Conductor side -


CN102
RF
TE
VC
TEI
FOCUS GAIN
RV102
FE
FEI
RV101
TRACKING GAIN
IC102
30
16
1
15
IC101
1
48
12
13
37
36
24
25

Adjustment Location :

【CD MAIN BOARD】

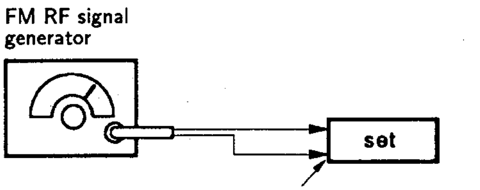
- Conductor side -


IC201
10
5
1
R310
R309
R308
JW1
JW2
C208
R231
ADJ
7
5
1
CN210
PCK
C206
C207
R206
R209
R208
R207
R205
CN207
64
60
55
50
45
41
40
35
30
25
65
70
75
80
1
5
10
15
20
24
IC201
TP (ADJ)
TP (PCK)

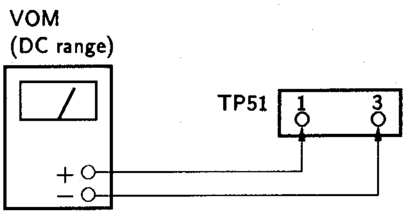
TUNER SECTION

FM SECTION ADJUSTMENTS

Setting :


FM RF signal generator
set
FM ANTENNA terminal

Carrier frequency : 98MHz
Modulation : 1kHz, 40kHz deviation


VOM
(DC range)
TP51
1
3
+
−

FM Discriminator Alignment (NULL Check)

Band : FM

Procedere :

1. Supply a 1mV (60dBμ) 98MHz signal from the ANTENNA terminal.
2. Tune the set to 98MHz.
3. Adjust IFT51 for 0V reading on the VOM.

Note : FM tuned indication lighting level adjustment should be made after FM discriminator alignment.

FM Tuned Indication Lighting Level Adjustment

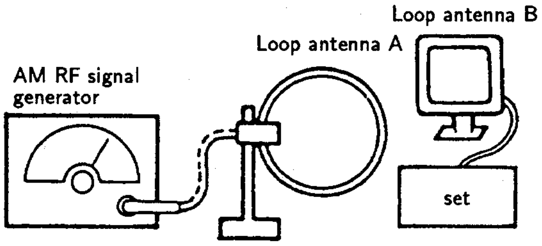
Band : FM

Procedure :

1. Supply a 22.5μV (27dBμ)(AEP, E) or 12.5μV (22dBμ) (Germany) 98MHz signal from the ANTENNA terminal.
2. Tune the set to 98MHz.
3. Adjust RV52 so that the TUNED light up.

AM SECTION ADJUSTMENTS

Setting :


Loop antenna B
Loop antenna A
AM RF signal generator
set

30% amplitude modulation by 400Hz signal

MW(AM) Tuned Indication Lighting Level Adjustment

Band : MW or AM

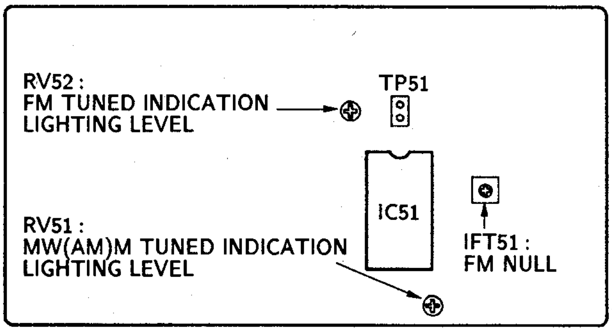
Procedure :

1. Set loop antenna A so that the loop antenna B input level becomes 0.25mV(48dBμ).
2. Tune the set to 1,404kHz.
3. Adjust the RV51 so that the TUNED light up.

Adjustment Location :

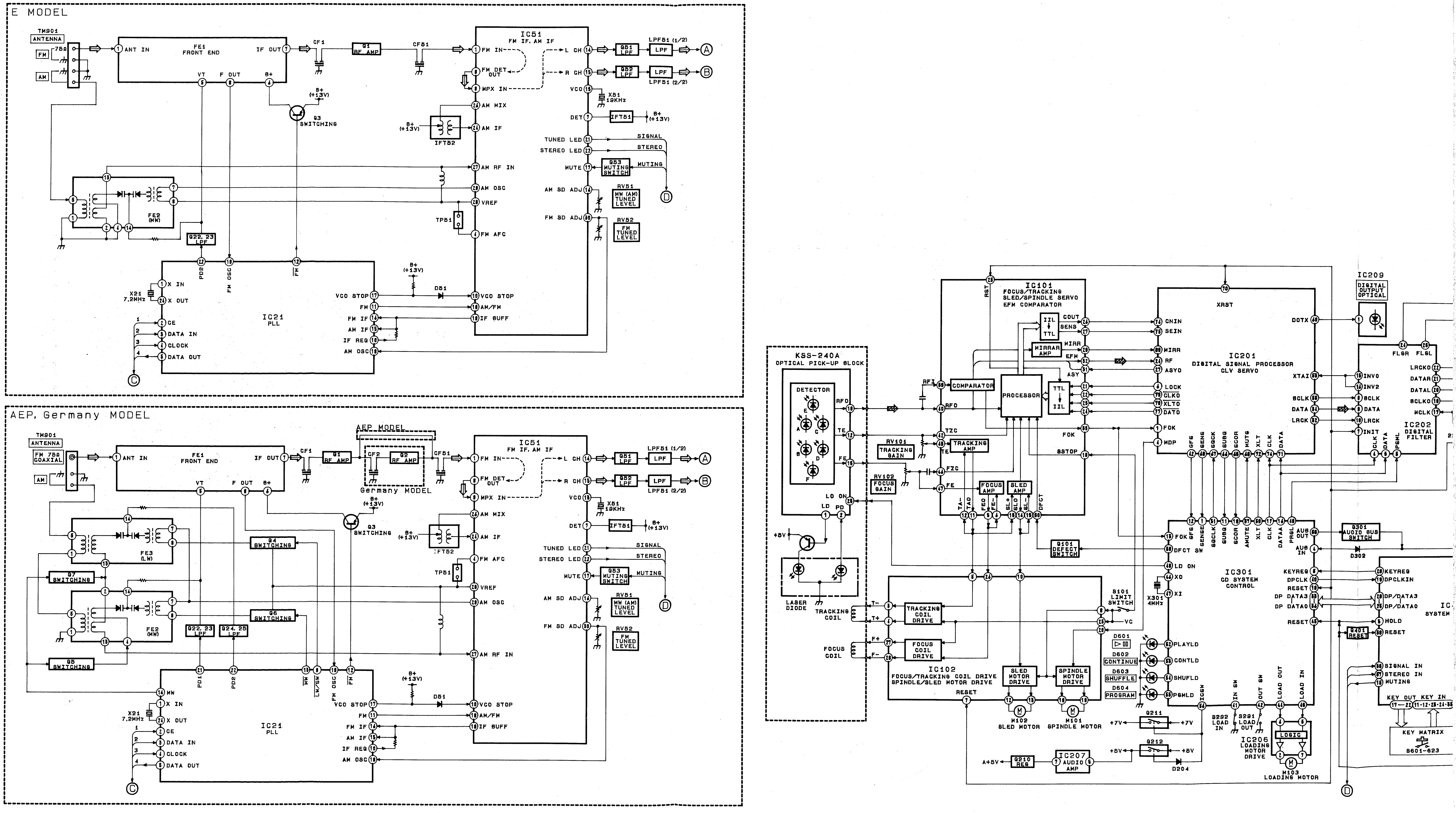
【TUNER BOARD】

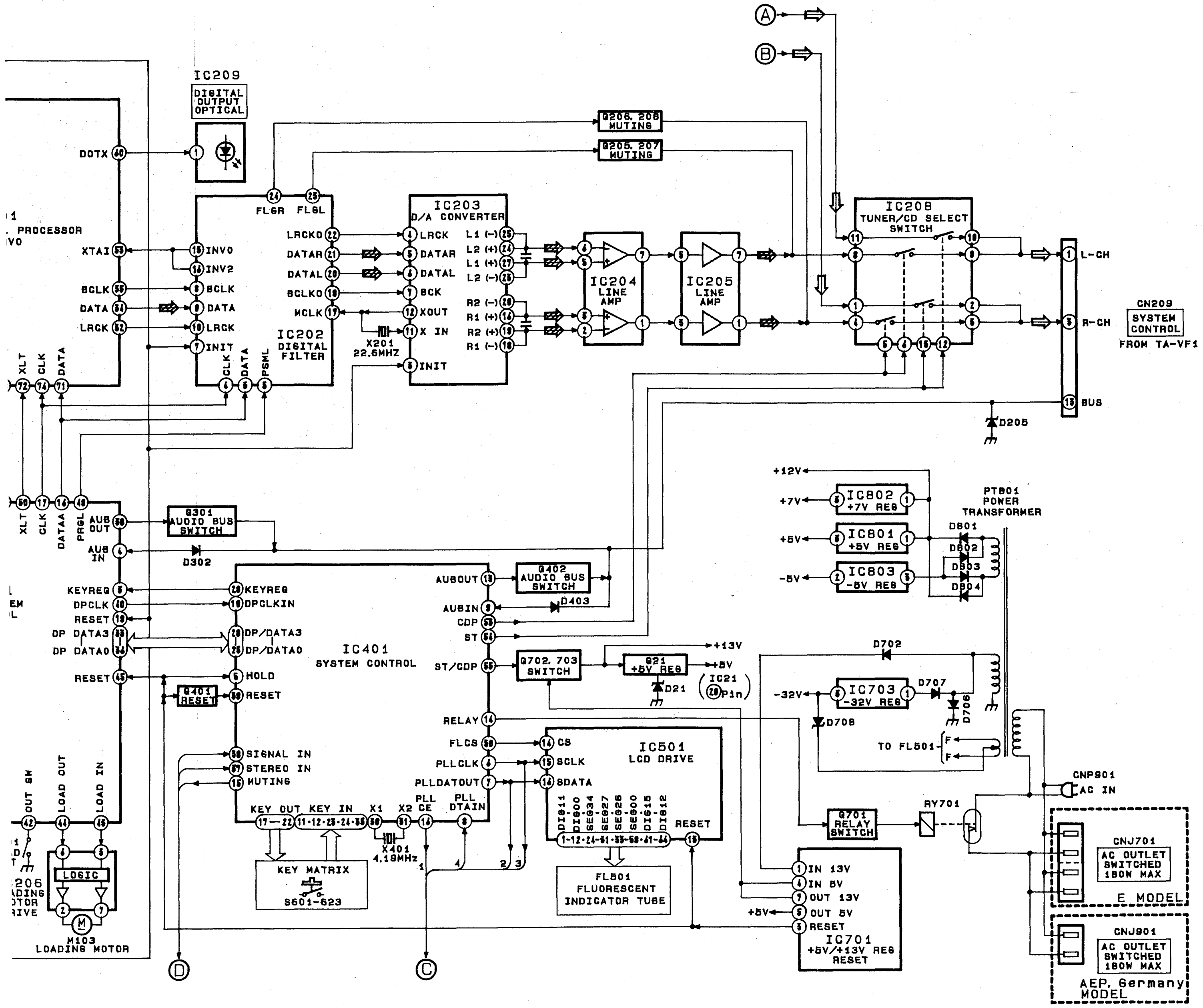
- Component side -


RV52 :
FM TUNED INDICATION LIGHTING LEVEL
TP51
IC51
RV51 :
MW(AM)M TUNED INDICATION LIGHTING LEVEL
IFT51 :
FM NULL

SECTION 3
DIAGRAMS

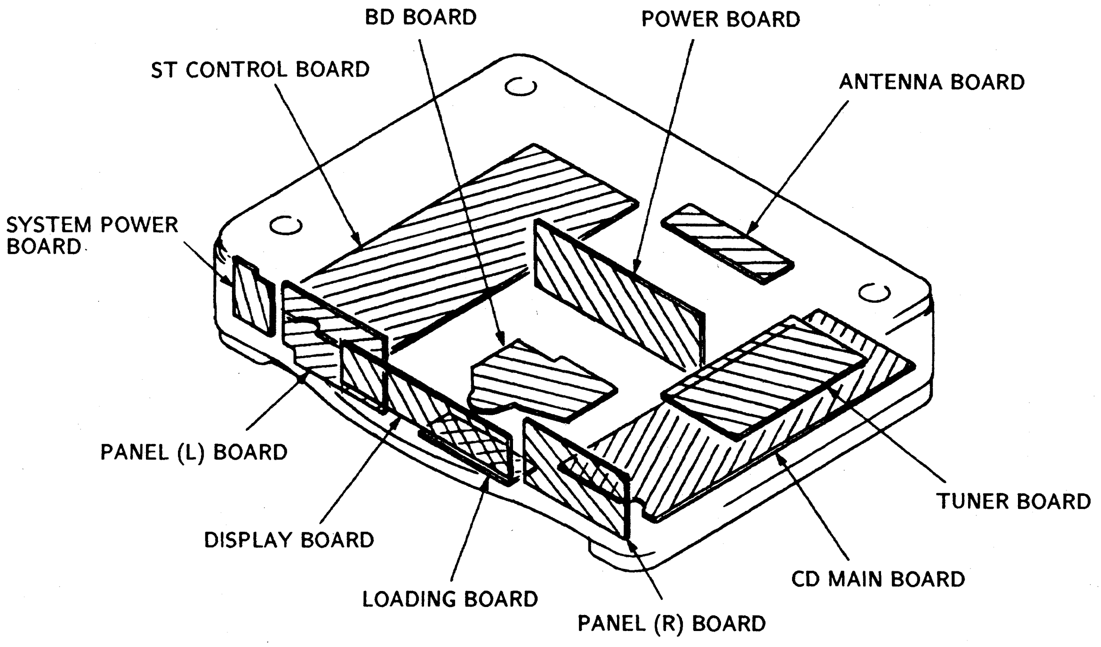
3-1. BLOCK DIAGRAM


E MODEL
AEP, Germany MODEL
AEP MODEL
Germany MODEL
TM901 ANTENNA
FM 75Ω
FM 75Ω COAXIAL
AM
FE1 FRONT END
ANT IN
IF OUT
VT
F OUT
B+
CF1
Q1 RF AMP
Q2 RF AMP
CF2
CF51
IC51 FM IF, AM IF
FM IN
FM DET OUT
MPX IN
AM MIX
AM IF
AM RF IN
AM OSC
VREF
FM AFC
L CH
R CH
VCO
DET
TUNED LED
STEREO LED
MUTE
AM SD ADJ
FM SD ADJ
Q51 LPF
Q52 LPF
LPF
LPF51 (1/2)
LPF51 (2/2)
X51 19KHz
IFT51
IFT52
B+ (+13V)
SIGNAL
STEREO
MUTING
Q53 MUTING SWITCH
RV51 MW (AM) TUNED LEVEL
RV52 FM TUNED LEVEL
Q3 SWITCHING
Q4 SWITCHING
Q5 SWITCHING
Q6 SWITCHING
Q7 SWITCHING
FE2 (MW)
FE3 (LW)
TP51
D51
Q22, 23 LPF
Q24, 25 LPF
IC21 PLL
X21 7.2MHz
X IN
X OUT
CE
DATA IN
CLOCK
DATA OUT
MW
LW/SW
PD1
PD2
FM OSC
FM
VCO STOP
AM/FM
FM IF
AM IF
IF REQ
AM OSC
IF BUFF
KSS-240A OPTICAL PICK-UP BLOCK
DETECTOR
RFO
TE
FE
LD ON
LD
PD
LASER DIODE
TRACKING COIL
FOCUS COIL
+5V
RV101 TRACKING GAIN
RV102 FOCUS GAIN
IC101 FOCUS/TRACKING SLED/SPINDLE SERVO EFM COMPARATOR
RST
RFI
COMPARATOR
PROCESSOR
IIL
TTL
MIRRAR AMP
TRACKING AMP
FOCUS AMP
SLED AMP
COUT
SENS
MIRR
EFM
ASY
FOK
SSTOP
TZC
FZC
TA-
TAO
FEO
SL+
SLO
SL-
DFCT
IC201 DIGITAL SIGNAL PROCESSOR CLV SERVO
XRST
CNIN
SEIN
MIRR
RF
ASYO
LOCK
CLKO
XLTO
DATO
FOK
MDP
DOTX
XTAI
SCLK
DATA
LRCK
GFS
SENS
SQCK
SUBQ
SCOR
MUTE
XLT
CLK
DATA
IC209 DIGITAL OUTPUT OPTICAL
IC202 DIGITAL FILTER
FLGR
FLGL
LRCKO
DATAR
DATAL
SCLKO
MCLK
INVO
INV2
SCLK
DATA
LRCK
INIT
Q101 DEFECT SWITCH
IC102 FOCUS/TRACKING COIL DRIVE SPINDLE/SLED MOTOR DRIVE
TRACKING COIL DRIVE
FOCUS COIL DRIVE
SLED MOTOR DRIVE
SPINDLE MOTOR DRIVE
RESET
M102 SLED MOTOR
M101 SPINDLE MOTOR
S101 LIMIT SWITCH
VC
IC301 CD SYSTEM CONTROL
FOK
DFCT SW
LD ON
XO
XI
X301 4MHz
AUG OUT
AUG IN
KEYREQ
DPCLK
RESET
DP DATA3
DP DATA0
PSGL
Q301 AUDIO BUS SWITCH
D302
D601
D602 CONTINUE
D603 SHUFFLE
D604 PROGRAM
PLAYLD
CONTLD
SHUFLD
PGMLD
ICSW
IN SW
OUT SW
LOAD OUT
LOAD IN
Q211
Q212
+7V
+5V
D204
IC207 AUDIO AMP
Q210 REG
A+5V
S292 LOAD IN
S291 LOAD OUT
IC206 LOADING MOTOR DRIVE
LOGIC
M103 LOADING MOTOR
KEYREQ
DPCLKIN
DP/DATA3
DP/DATA0
HOLD
RESET
Q401 RESET
SIGNAL IN
STEREO IN
MUTING
KEY OUT
KEY IN
KEY MATRIX
S601-623
SYSTEM
A
B
C
D



IC209 DIGITAL OUTPUT OPTICAL
DOTX
PROCESSOR
XTAI
BCLK
DATA
LRCK
XLT
CLK
DATA
IC202 DIGITAL FILTER
FLSR
FLSL
LRCKO
DATAR
DATAL
BCLKO
MCLK
INVO
INV2
BCLK
DATA
LRCK
INIT
PSHL
X201 22.5MHZ
IC203 D/A CONVERTER
LRCK
DATAR
DATAL
BCK
XOUT
X IN
INIT
L1 (-)
L2 (+)
L1 (+)
L2 (-)
R2 (-)
R1 (+)
R2 (+)
R1 (-)
Q206, 208 MUTING
Q205, 207 MUTING
IC204 LINE AMP
IC205 LINE AMP
IC208 TUNER/CD SELECT SWITCH
L-CH
R-CH
BUS
D205
CN209 SYSTEM CONTROL
FROM TA-VF1
Ⓐ
Ⓑ
Ⓒ
Ⓓ
XLT
CLK
DATAA
PRSL
AUS OUT
AUS IN
Q301 AUDIO BUS SWITCH
D302
KEYREQ
DPCLK
RESET
DP DATA3
DP DATA0
RESET
KEYREQ
DPCLKIN
DP/DATA3
DP/DATA0
HOLD
RESET
Q401 RESET
IC401 SYSTEM CONTROL
AUSOUT
AUSIN
CDP
ST
ST/CDP
Q402 AUDIO BUS SWITCH
D403
Q702, 703 SWITCH
Q21 +5V REG
D21
IC21 (28)Pin
+13V
+5V
RELAY
FLCS
PLLCLK
PLLDATOUT
CS
SCLK
SDATA
IC501 LCD DRIVE
RESET
SIGNAL IN
STEREO IN
MUTING
KEY OUT
KEY IN
X1
X2
PLL CE
PLL DTAIN
X401 4.19MHz
KEY MATRIX
S601-623
FL501 FLUORESCENT INDICATOR TUBE
Q701 RELAY SWITCH
RY701
IC701 +5V/+13V REG RESET
IN 13V
IN 5V
OUT 13V
OUT 5V
RESET
+12V
+7V
+5V
-5V
IC802 +7V REG
IC801 +5V REG
IC803 -5V REG
PT801 POWER TRANSFORMER
D801
D802
D803
D804
D702
-32V
IC703 -32V REG
D707
D706
D708
TO FL501
CNP801 AC IN
CNJ701 AC OUTLET SWITCHED 150W MAX
E MODEL
CNJ801 AC OUTLET SWITCHED 150W MAX
AEP, Germany MODEL
OUT SW
LOAD OUT
LOAD IN
LOGIC
206
LOADING MOTOR DRIVE
M103 LOADING MOTOR

3-2. CIRCUIT BOARDS LOCATION



BD BOARD
POWER BOARD
ST CONTROL BOARD
ANTENNA BOARD
SYSTEM POWER BOARD
PANEL (L) BOARD
TUNER BOARD
DISPLAY BOARD
CD MAIN BOARD
LOADING BOARD
PANEL (R) BOARD

• Semiconductor Location

AEP, Germany model

Ref. No.	Location
D21	D-4
D51	D-2
IC21	C-5
IC51	D-3
Q1	B-3
Q2	C-3
Q3	C-4
Q4	E-5
Q5	D-7
Q6	D-5
Q7	D-7
Q21	C-4
Q22	C-6
Q23	C-6
Q24	C-6
Q25	C-7
Q51	C-2
Q52	C-1
Q53	B-2

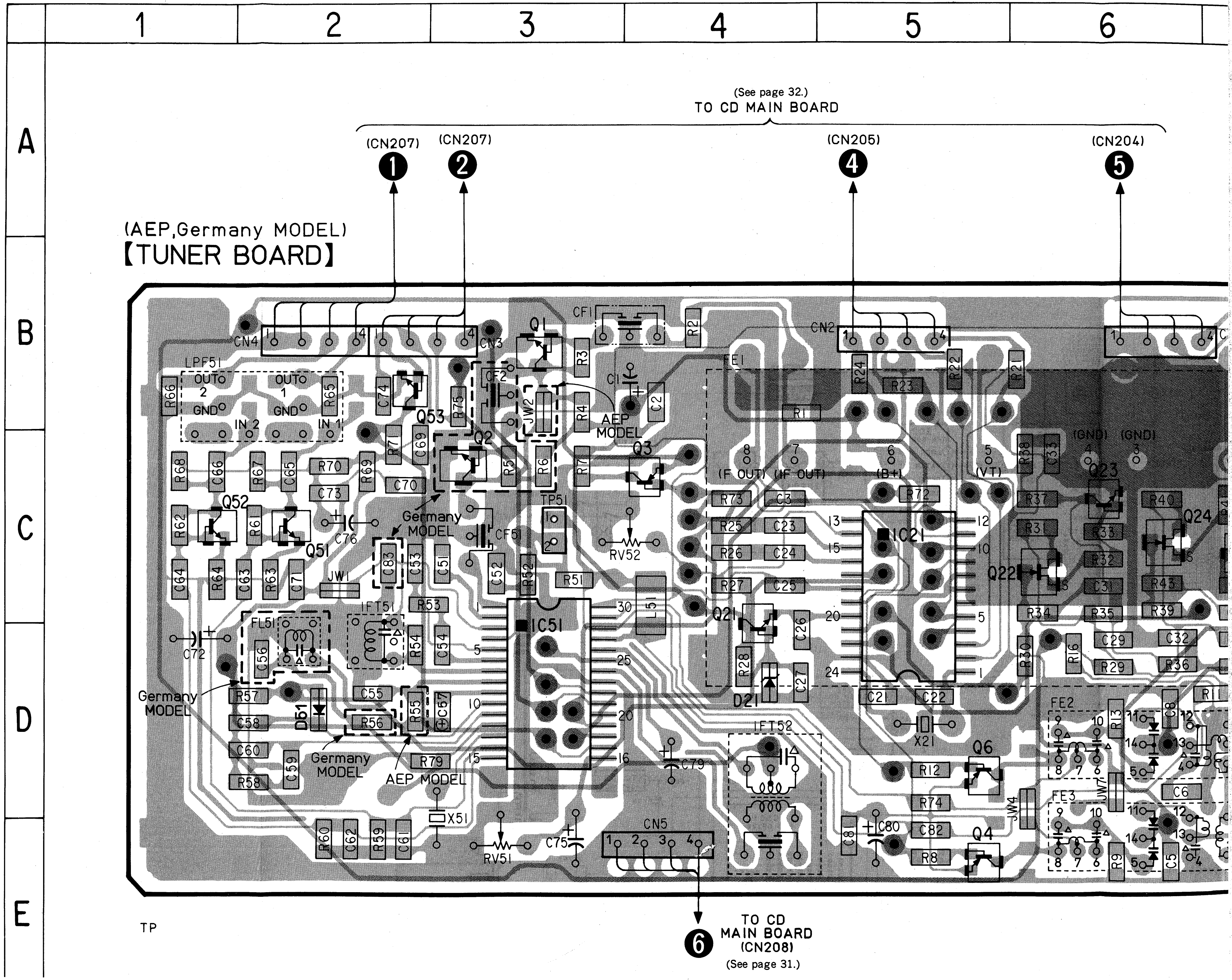
E model

Ref. No.	Location
D21	D-11
D51	D-9
IC21	C-12
IC51	D-10
Q1	B-10
Q3	C-11
Q21	C-11
Q22	C-13
Q23	C-13
Q51	C-9
Q52	C-8
Q53	B-9

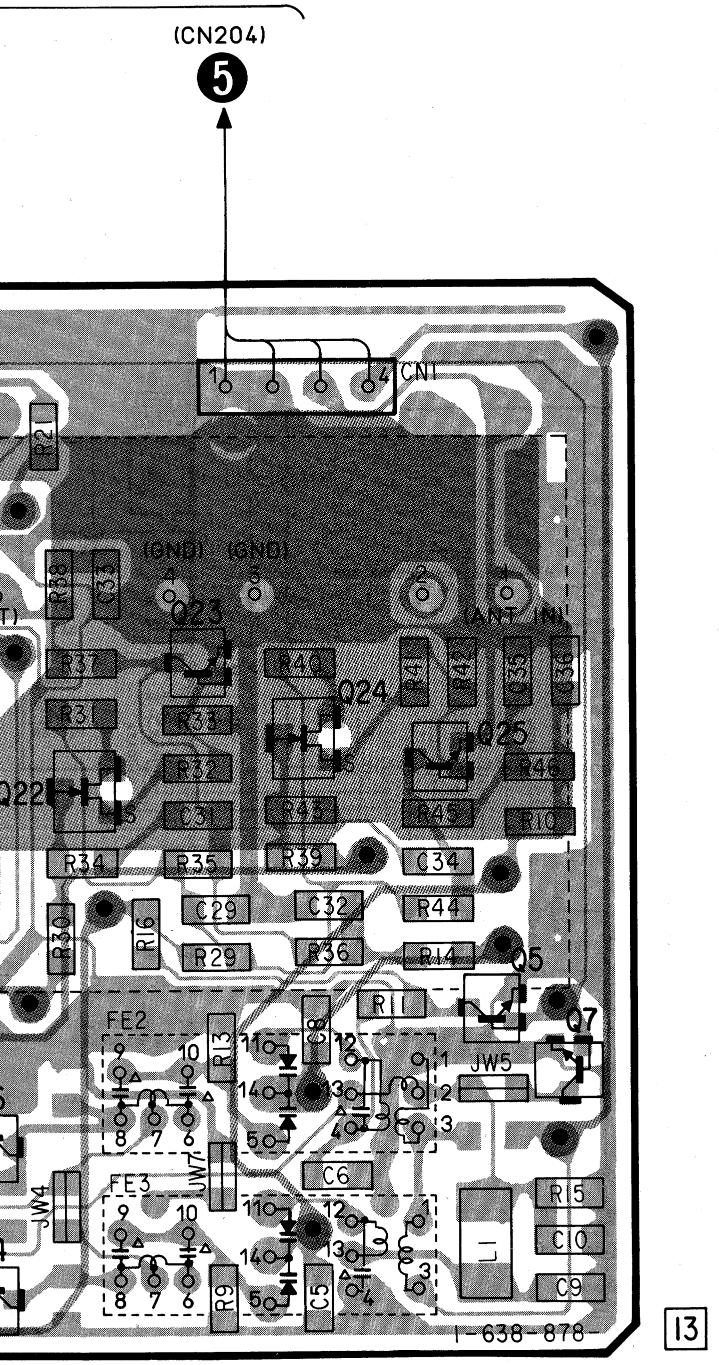
Note:

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

3-3. PRINTED WIRING BOARDS—TUNER SECTION— • Refer to page 19 for Semiconductor Lead Layouts.

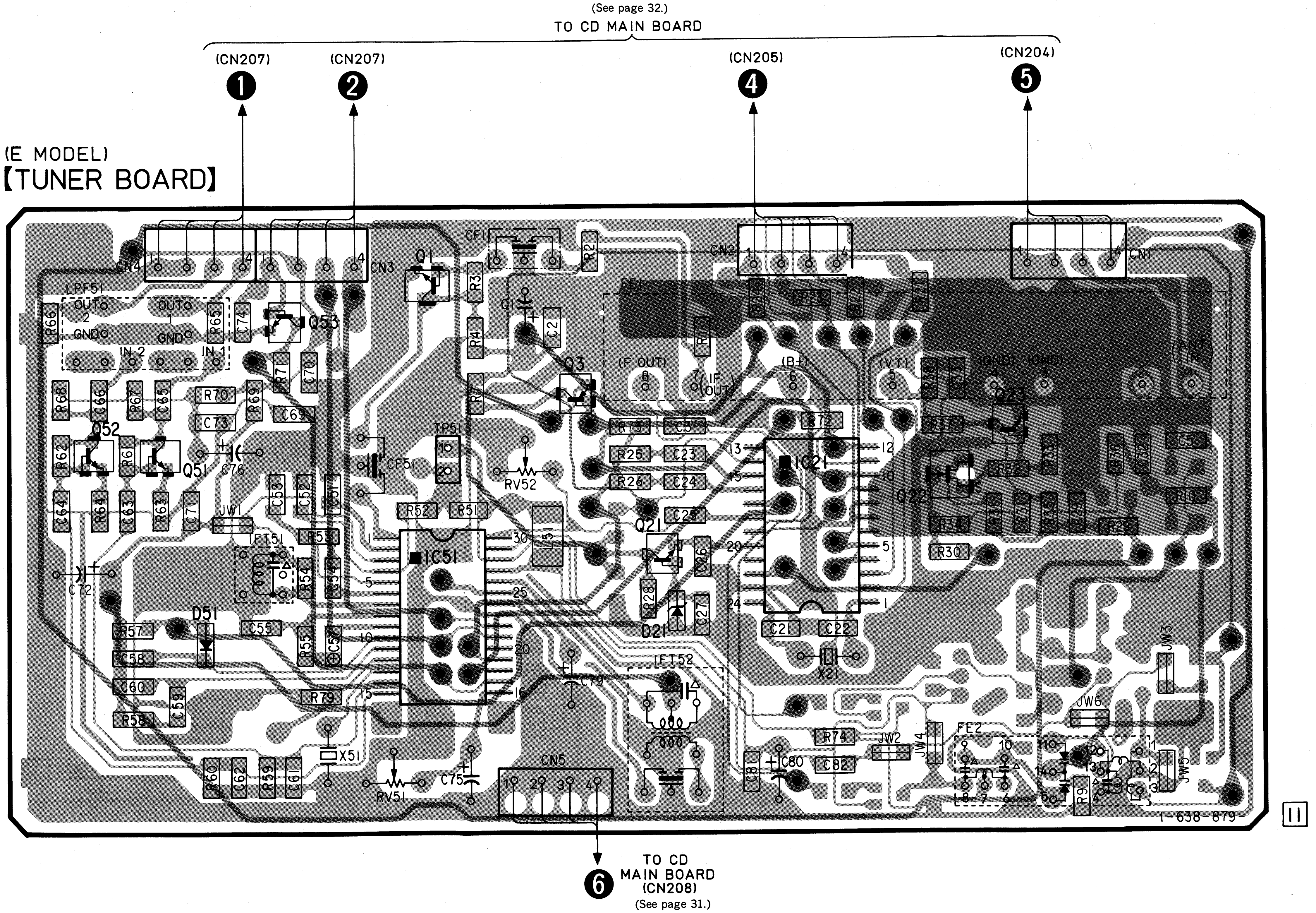

1
2
3
4
5
6
A
B
C
D
E
(See page 32.)
TO CD MAIN BOARD
(CN207) ❶
(CN207) ❷
(CN205) ❹
(CN204) ❺
(AEP,Germany MODEL)
【TUNER BOARD】
CN4
CN3
CN2
CN5
LPF51
OUT 2
OUT 1
GND
IN 2
IN 1
CF1
CF2
CF5
JW2
AEP MODEL
Germany MODEL
FE1
(F OUT)
(IF OUT)
(B+)
(VT)
(GND)
TP51
RV52
RV51
IC51
IC21
Q1
Q2
Q3
Q4
Q6
Q21
Q22
Q23
Q24
Q51
Q52
Q53
D21
D51
FL51
IFT51
IFT52
X21
X51
FE2
FE3
JW1
JW4
JW7
TP
❻ TO CD MAIN BOARD (CN208)
(See page 31.)

6
7
8
9
10
11
12
13
14

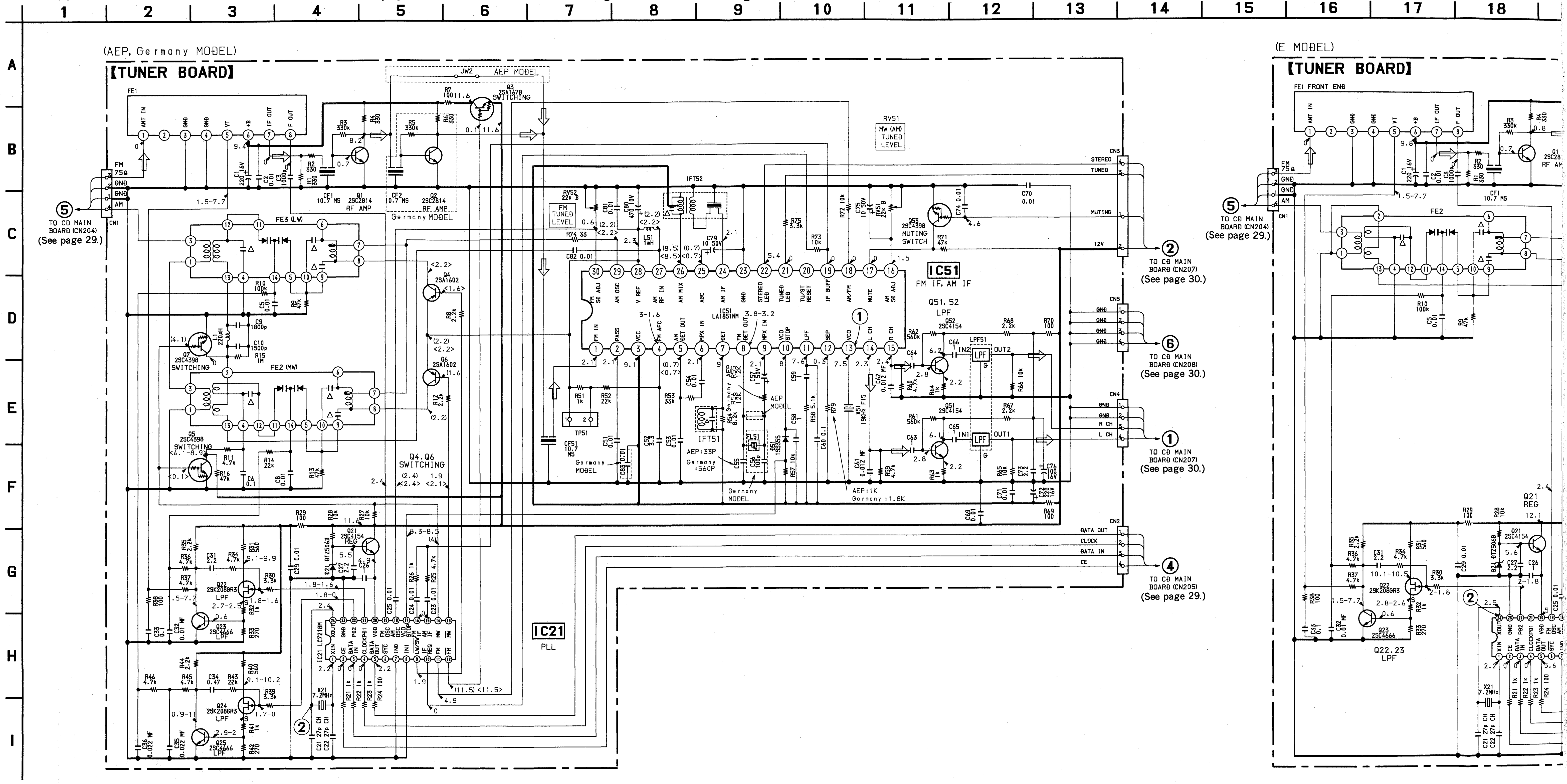

(CN204)
5
CN1
FE2
FE3
Q22
Q23
Q24
Q25
Q5
Q7
JW4
JW5
L1
(ANT IN)
(GND)
(GND)
1-638-878
13

(E MODEL)

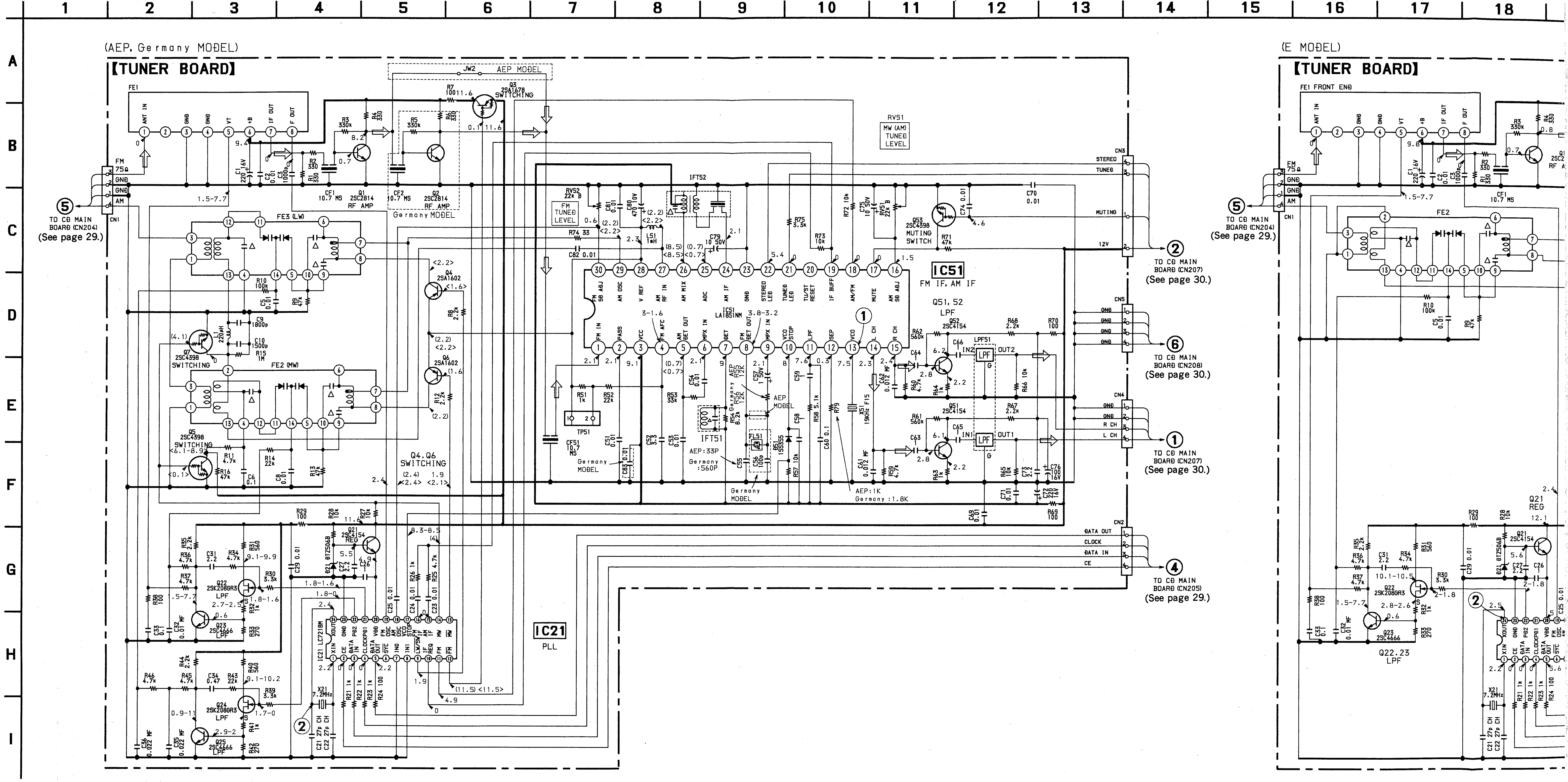
【TUNER BOARD】


(See page 32.)
TO CD MAIN BOARD
(CN207)
1
(CN207)
2
(CN205)
4
(CN204)
5
CN4
CN3
CN2
CN1
CN5
LPF51
Q1
Q3
Q21
Q22
Q23
Q51
Q52
Q53
IC51
IC21
CF1
CF51
FE1
FE2
IFT51
IFT52
TP51
RV51
RV52
D21
D51
X21
X51
JW1
JW2
JW3
JW4
JW5
JW6
(F OUT)
(IF OUT)
(B+)
(VT)
(GND)
(GND)
(ANT IN)
1-638-879
11
TO CD MAIN BOARD (CN208)
6
(See page 31.)

3-4. SCHEMATIC DIAGRAM—TUNER SECTION— • Refer to page 33 for Front End Scnematic Diagrams and IC Block Diagrams.


(AEP, Germany MODEL)
【TUNER BOARD】
FE1
ANT IN
GND
VT
+B
IF OUT
F OUT
JW2 AEP MODEL
R7 100
Q3 2SA1478 SWITCHING
R3 330k
R4 330
R5 330k
R6 330
Q1 2SC2814 RF AMP
CF1 10.7 MS
CF2 10.7 MS
Q2 2SC2814 RF AMP
Germany MODEL
FM 75Ω
GND
AM
CN1
⑤ TO CD MAIN BOARD (CN204) (See page 29.)
FE3 (LW)
FE2 (MW)
R10 100k
C9 1800p
C10 1500p
R15 1M
Q7 2SC4398 SWITCHING
Q5 2SC4398 SWITCHING
Q4 2SA1602
Q6 2SA1602
Q4, Q6 SWITCHING
R11 4.7k
R16 47k
R14 22k
R13
RV51 MW (AM) TUNED LEVEL
RV52 22k B
FM TUNED LEVEL
R74 33
C82 0.01
IFT52
L51 1mH
C79 10 50V
R75 3.3k
R73 10k
R72 10k
Q53 2SC4398 MUTING SWITCH
R71 47k
C70 0.01
IC51 FM IF, AM IF
IC51 LA1851NM
FM SD ADJ
AM OSC
V REF
AM RF IN
AM MIX
AGC
AM IF
GND
STEREO LED
TUNED LED
TU/ST RESET
IF BUFF
AM/FM
MUTE
AM SD ADJ
FM IN
PASS
VCC
FM AFC
AM DET OUT
MPX IN
DET
FM DET OUT
MPX IN
VCO STOP
LPF
SEP
VCO
L CH
R CH
Q51, 52 LPF
Q52 2SC4154
Q51 2SC4154
LPF51
LPF
OUT1
OUT2
R62 560k
R61 560k
R68 2.2k
R70 100
R67 2.2k
R69 100
TP51
CF51 10.7 MS
IFT51
AEP: 33P Germany: 560P
AEP MODEL
X51 190kHz F15
AEP: 1K Germany: 1.8K
CN3 STEREO TUNED MUTING 12V
② TO CD MAIN BOARD (CN207) (See page 30.)
CN5 GND GND GND GND
⑥ TO CD MAIN BOARD (CN208) (See page 30.)
CN4 GND GND R CH L CH
① TO CD MAIN BOARD (CN207) (See page 30.)
CN2 DATA OUT CLOCK DATA IN CE
④ TO CD MAIN BOARD (CN205) (See page 29.)
R29 100
R28 10k
R27 10k
Q21 2SC4154 REG
D21 DTZ5068
Q22 2SK208GR3 LPF
Q23 2SC4666 LPF
Q24 2SK208GR3 LPF
Q25 2SC4666 LPF
IC21 LC7218M
IC21 PLL
X21 7.2MHz
C21 27p CH
C22 27p CH
R21 1k
R22 1k
R23 1k
R24 100
(E MODEL)
【TUNER BOARD】
FE1 FRONT END
Q1 2SC28 RF AM
FE2
Q21 REG
Q22, 23 LPF

3-4. SCHEMATIC DIAGRAM—TUNER SECTION— • Refer to page 33 for Front End Scnematic Diagrams and IC Block Diagrams.


1
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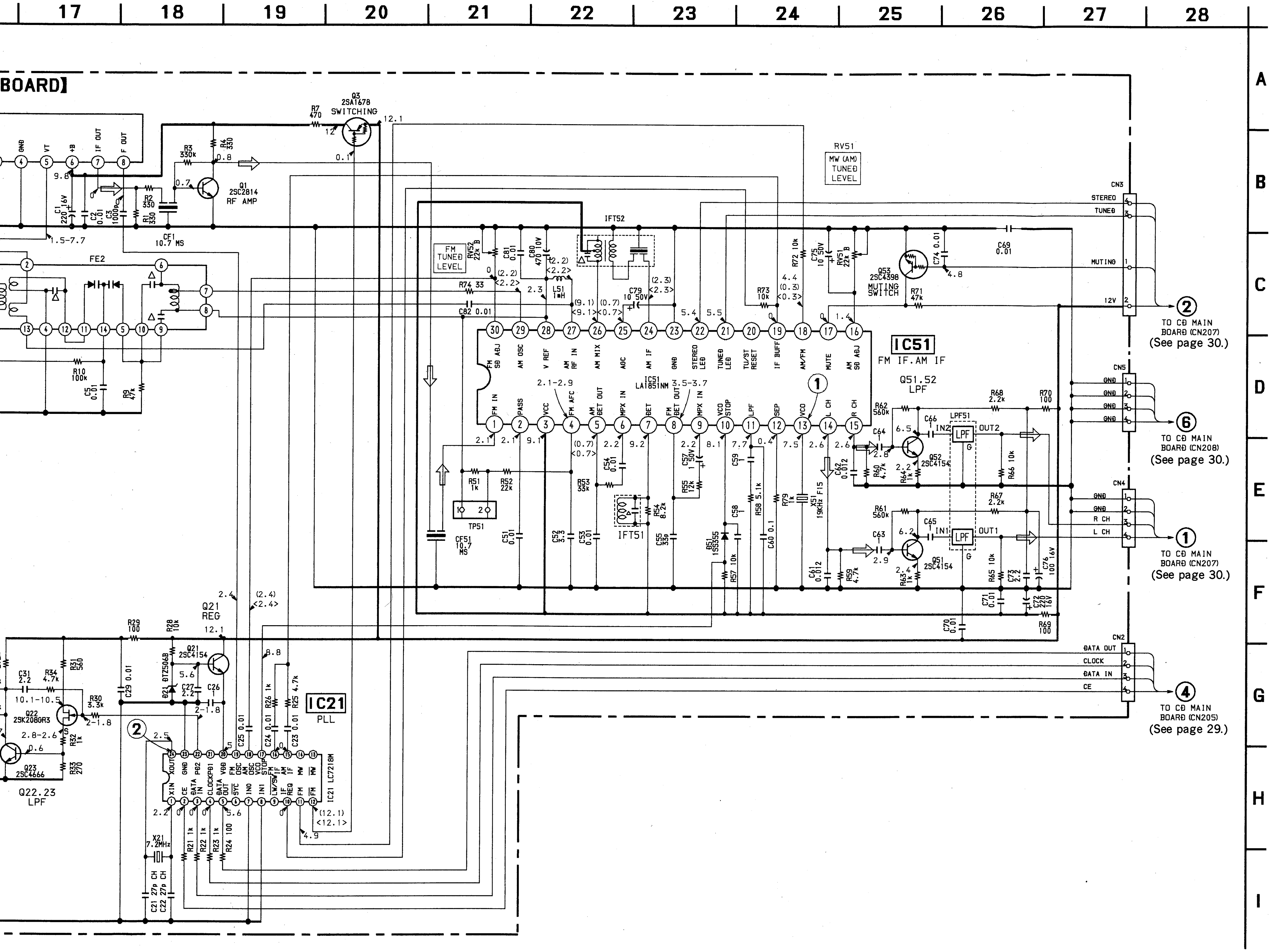
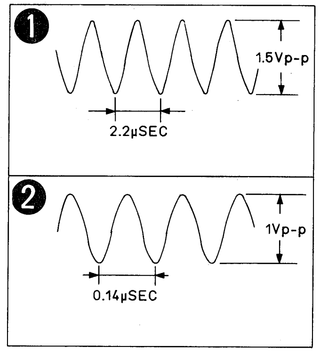
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
(AEP, Germany MODEL)
【TUNER BOARD】
FE1
ANT IN
GND
VT
+B
IF OUT
F OUT
FM 75Ω
GND
AM
CN1
⑤
TO CD MAIN BOARD (CN204)
(See page 29.)
JW2 AEP MODEL
R7 100
Q3 2SA1678 SWITCHING
R3 330k
R4 330
R5 330k
R6 330
C1 220 16V
C2 0.01
C3 1000p
R2 330
R1 330
CF1 10.7 MS
Q1 2SC2814 RF AMP
CF2 10.7 MS
Q2 2SC2814 RF AMP
Germany MODEL
FE3 (LW)
R10 100k
C5 0.01
R9 47k
Q4 2SA1602
R8 2.2k
C9 1800p
C10 1500p
R15 1M
Q7 2SC4398 SWITCHING
FE2 (MW)
Q6 2SA1602
R12 2.2k
Q5 2SC4398 SWITCHING
R11 4.7k
R16 47k
C4 0.1
R14 22k
C8 0.01
R13 47k
Q4, Q6 SWITCHING
RV52 22k B
FM TUNED LEVEL
C81 0.01
C80 47 50V
L51 1mH
R74 33
C82 0.01
IFT52
C79 10 50V
R75 3.3k
R73 10k
R72 10k
C75 1 50V
RV51 22k B
Q53 2SC4398 MUTING SWITCH
C74 0.01
R71 47k
C70 0.01
RV51
MW (AM) TUNED LEVEL
IC51
FM IF, AM IF
IC51 LA1851NM
FM SD ADJ
AM OSC
V REF
AM RF IN
AM MIX
AGC
AM IF
GND
STEREO LED
TUNED LED
TU/ST RESET
IF BUFF
AM/FM
MUTE
AM SD ADJ
FM IN
PASS
VCC
FM AFC
AM DET OUT
MPX IN
DET
FM DET OUT
MPX IN
VCO STOP
LPF
SEP
VCO
L CH
R CH
①
Q51, 52 LPF
Q52 2SC4154
R62 560k
C64
C66
LPF51
IN2
OUT2
R68 2.2k
R70 100
R60 4.7k
R64 1k
R66 10k
R51 1k
R52 22k
TP51
CF51 10.7 MS
C51 0.01
C83 0.01
Germany MODEL
C52 3.3
C53 0.01
R53 33k
C54 0.01
AEP R55 12k
Germany R56 8.2k
C57 1 50V
IFT51
AEP:33P
Germany :560P
AEP MODEL
C55
C56 100p
FL51
D51 1SS355
R57 10k
C58
R58 5.1k
C60 0.1
R79
X51 19kHz F15
C61 0.012 MF
C62 0.012 MF
R59 4.7k
AEP:1K
Germany :1.8K
Q51 2SC4154
R61 560k
C63
C65
IN1
OUT1
R67 2.2k
R63 1k
R65 10k
C73
C72
C76 100 16V
C71 0.01
C77 220 16V
C69 0.01
R69 100
CN3
STEREO
TUNED
MUTING
12V
②
TO CD MAIN BOARD (CN207)
(See page 30.)
CN5
GND
⑥
TO CD MAIN BOARD (CN208)
(See page 30.)
CN4
R CH
L CH
①
TO CD MAIN BOARD (CN207)
(See page 30.)
CN2
DATA OUT
CLOCK
DATA IN
CE
④
TO CD MAIN BOARD (CN205)
(See page 29.)
R29 100
R28 10k
R27 10k
Q21 2SC4154 REG
D21 DTZ5068
C27 2.2
C26
C29 0.01
R35 2.2k
R36 4.7k
C31 2.2
R34 4.7k
R31 560
R30 3.3k
R37 4.7k
Q22 2SK2080R3 LPF
R38 100
C33 0.1
C32 0.01 MF
Q23 2SC4666
R32 1k
R33 270
C25 0.01
R26 1k
C24 0.01
R25 4.7k
C23 0.01
IC21 LC7218M
XIN
XOUT
GND
PD2
CE
DATA IN
CLOCK
PD1
DATA OUT
SYC
VDD
IN1
MW/LW
FM OSC
VCO STOP
FM REQ
AM
IF REQ
MW
FM
X21 7.2MHz
C21 27p CH
C22 27p CH
R21 1k
R22 1k
R23 1k
R24 100
IC21
PLL
②
R46 4.7k
R44 2.2k
R45 4.7k
C34 0.47
R43 22k
R40 560
R39 3.3k
Q24 2SK2080R3 LPF
R41 1k
R42 270
C36 0.022 MF
C35 0.022 MF
Q25 2SC4666 LPF
(E MODEL)
【TUNER BOARD】
FE1 FRONT END
FE2
CF1 10.7 MS
Q21 REG
Q22, 23 LPF


17
18
19
20
21
22
23
24
25
26
27
28
A
B
C
D
E
F
G
H
I
BOARD]
Q3
2SA1678
SWITCHING
R7 470
12.1
Q1
2SC2814
RF AMP
CF1
10.7 MS
FE2
RV51
MW (AM)
TUNED
LEVEL
FM
TUNED
LEVEL
RV52 22k B
IFT52
L51 1mH
IC51
FM IF.AM IF
IC51
LA1851NM
Q51.52
LPF
Q53
2SC4398
MUTING
SWITCH
CN3
STEREO
TUNED
MUTING
12V
TO CD MAIN
BOARD (CN207)
(See page 30.)
CN5
GND
GND
GND
GND
TO CD MAIN
BOARD (CN208)
(See page 30.)
CN4
GND
GND
R CH
L CH
TO CD MAIN
BOARD (CN207)
(See page 30.)
LPF51
Q52
2SC4154
Q51
2SC4154
TP51
CF51
10.7
MS
IFT51
CN2
DATA OUT
CLOCK
DATA IN
CE
TO CD MAIN
BOARD (CN205)
(See page 29.)
Q21
REG
Q21
2SC4154
D21 DTZ5.6B
Q22
2SK208GR3
Q23
2SC4666
Q22.23
LPF
IC21
PLL
IC21 LC7218M
X21
7.2MHz

• Waveforms

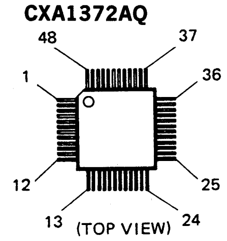


Note:

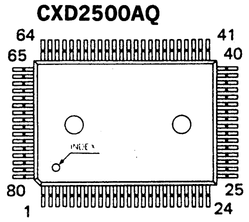
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- △ : internal component.
- ▬ : B+ Line
- ☐ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW
  < > : LW
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM

3-5. SEMICONDUCTOR LEAD LAYOUTS

CXA1372AQ

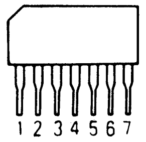

48
37
1
36
12
25
13
(TOP VIEW)
24

CXD2500AQ

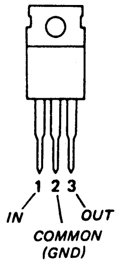

64
41
65
40
80
25
1
24

MARKING SIDE VIEW

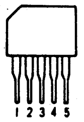
LA5667



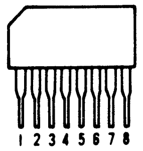
M5F78M07L
TA7805S


1 2 3
IN
OUT
COMMON
(GND)

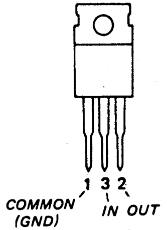
M5293L



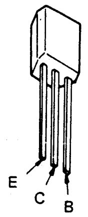
M54641L



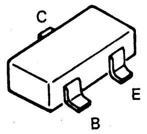
RC79M05FA


1 3 2
COMMON
(GND)
IN
OUT

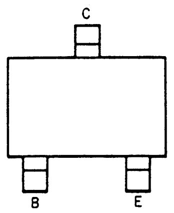
DTA144ES
DTC114ES
2SC2603-EF



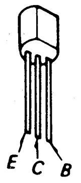
DTC144EK
2SA1602
2SC2814-F4
2SC4154
2SC4666B



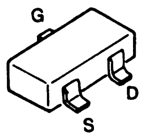
2SA1678
2SC4398



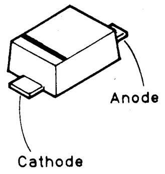
2SB1116A-L
2SC2878-AB



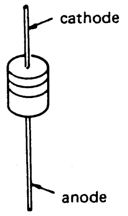
2SK208GR3



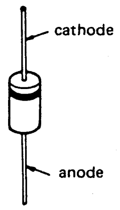
MA8056-TX


Anode
Cathode

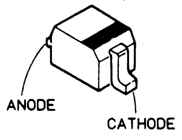
UZL-7L2
11EQS04


cathode
anode

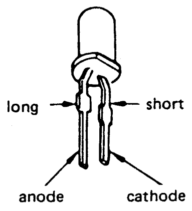
1N4148M
10E2N


cathode
anode

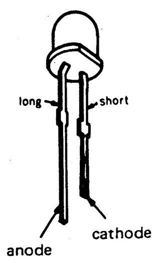
1SS352


ANODE
CATHODE

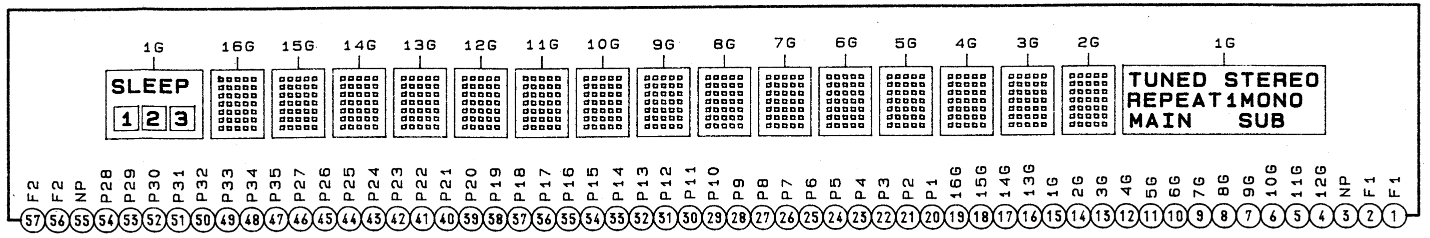
SEL2210S-CD


long
short
anode
cathode

SEL2810A


long
short
anode
cathode

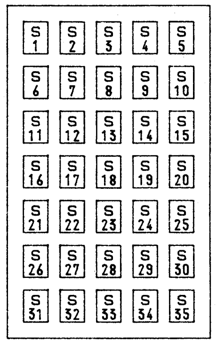
FL501 FLUORESCENT INDICATOR TUBE


1G
16G
15G
14G
13G
12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
1G
SLEEP
1
2
3
TUNED STEREO
REPEAT 1MONO
MAIN SUB
57 F2
56 F2
55 NP
54 P28
53 P29
52 P30
51 P31
50 P32
49 P33
48 P34
47 P35
46 P27
45 P26
44 P25
43 P24
42 P23
41 P22
40 P21
39 P20
38 P19
37 P18
36 P17
35 P16
34 P15
33 P14
32 P13
31 P12
30 P11
29 P10
28 P9
27 P8
26 P7
25 P6
24 P5
23 P4
22 P3
21 P2
20 P1
19 16G
18 15G
17 14G
16 13G
15 1G
14 2G
13 3G
12 4G
11 5G
10 6G
9 7G
8 8G
7 9G
6 10G
5 11G
4 12G
3 NP
2 F1
1 F1

ANODE CONNECTION

	16G - 2G	1G
P1	S1	–
P2	S2	–
P3	S3	–
P4	S4	–
P5	S5	–
P6	S6	–
P7	S7	–
P8	S8	–
P9	S9	–
P10	S10	–
P11	S11	–
P12	S12	–
P13	S13	–
P14	S14	–
P15	S15	–
P16	S16	–
P17	S17	–
P18	S18	–
P19	S19	–
P20	S20	–
P21	S21	–
P22	S22	–
P23	S23	–
P24	S24	–
P25	S25	SLEEP
P26	S26	1
P27	S27	2
P28	S28	3
P29	S29	TUNED
P30	S30	STEREO
P31	S31	REPEAT
P32	S32	1
P33	S33	MONO
P34	S34	MAIN
P35	S35	SUB

(2G-16G)


S 1
S 2
S 3
S 4
S 5
S 6
S 7
S 8
S 9
S 10
S 11
S 12
S 13
S 14
S 15
S 16
S 17
S 18
S 19
S 20
S 21
S 22
S 23
S 24
S 25
S 26
S 27
S 28
S 29
S 30
S 31
S 32
S 33
S 34
S 35

• Semiconductor Location

Ref. No.	Location
D401	F-5
D402	H-5
D403	E-2
D404	F-3
D405	G-3
D406	G-3
D407	G-3
D408	G-3
D409	G-3
D411	G-5
D413	G-5
D601	I-16
D602	I-13
D603	I-14
D604	I-14
D701	D-3
D702	C-5
D706	D-4
D707	D-4
D708	D-4
D801	C-11
D802	C-11
D803	B-11
D804	B-11
IC401	G-4
IC501	F-10
IC701	D-5
IC703	E-4
IC801	C-12
IC802	C-13
IC803	B-12
Q401	F-15
Q402	E-2
Q701	D-3
Q702	E-3
Q703	E-3

Note:

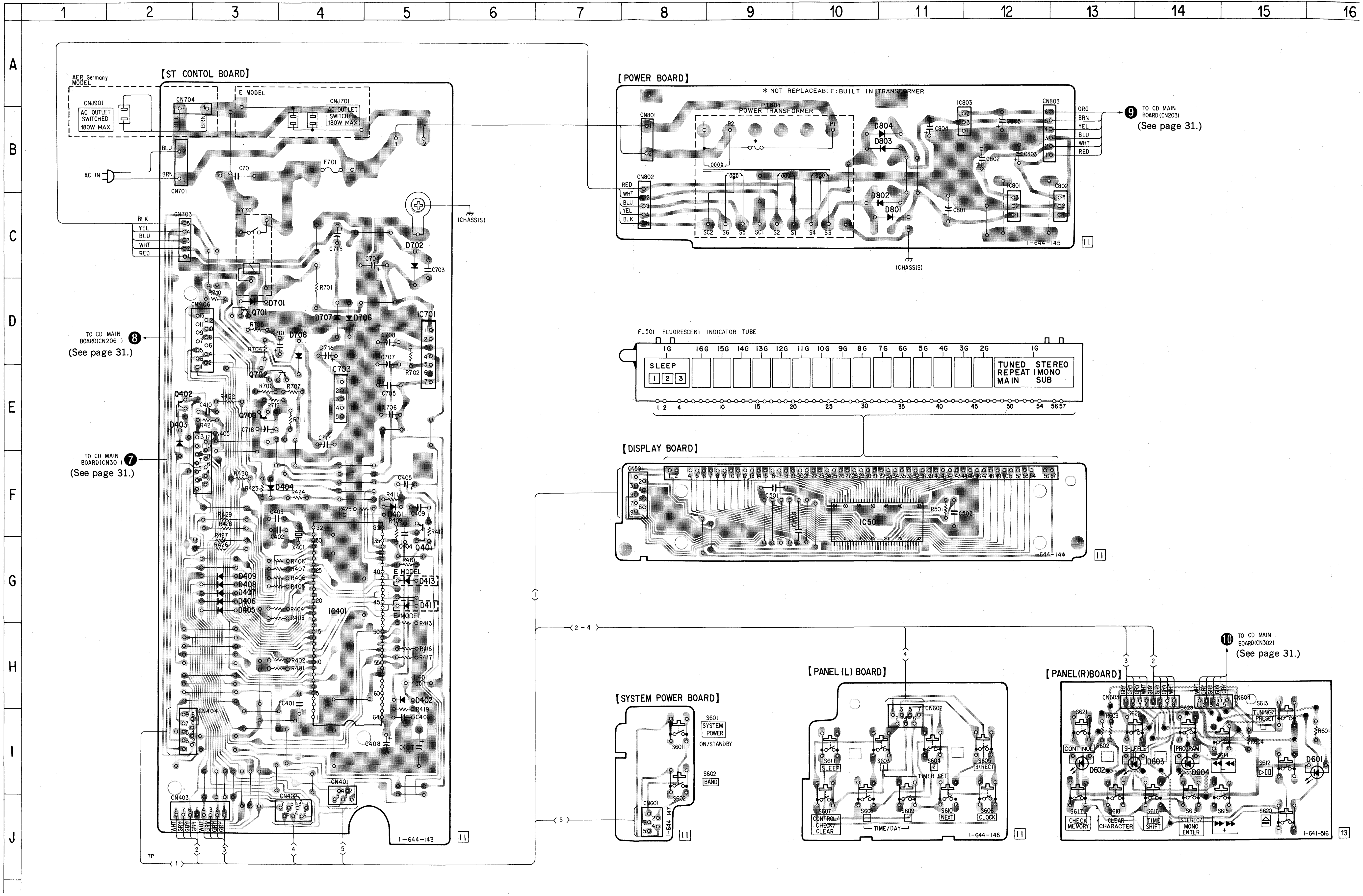
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒ : Pattern on the side which is seen.
- ▒ : Pattern of the rear side.

• Semiconductor Location

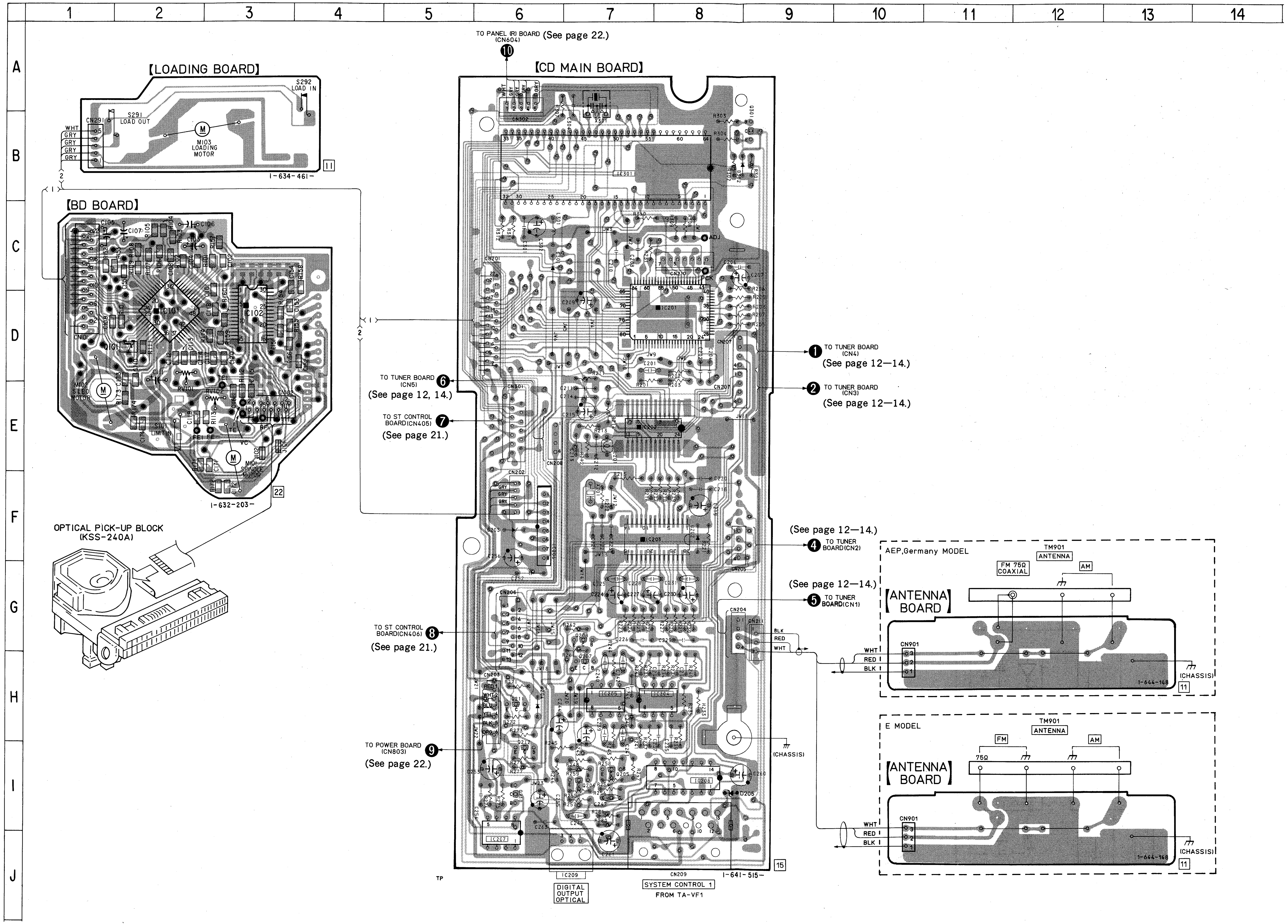
Ref. No.	Location
D401	F-5
D402	H-5
D403	E-2
D404	F-3
D405	G-3
D406	G-3
D407	G-3
D408	G-3
D409	G-3
D411	G-5
D413	G-5
D601	I-16
D602	I-13
D603	I-14
D604	I-14
D701	D-3
D702	C-5
D706	D-4
D707	D-4
D708	D-4
D801	C-11
D802	C-11
D803	B-11
D804	B-11
IC401	G-4
IC501	F-10
IC701	D-5
IC703	E-4
IC801	C-12
IC802	C-13
IC803	B-12
Q401	F-15
Q402	E-2
Q701	D-3
Q702	E-3
Q703	E-3

arts extracted from the component side.
Through hole.
attern on the side which is seen.
attern of the rear side.

3-6. PRINTED WIRING BOARDS—DISPLAY/SYSTEM CONTROL/POWER SECTION—


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
[ST CONTOL BOARD]
AEP, Germany MODEL
CNJ901
AC OUTLET SWITCHED 180W MAX
E MODEL
CNJ701
AC OUTLET SWITCHED 180W MAX
CN704
CN701
AC IN
F701
C701
RY701
(CHASSIS)
CN703
BLK
YEL
BLU
WHT
RED
D702
C703
C715
C704
R701
D701
Q701
D707
D706
IC701
R710
CN406
TO CD MAIN BOARD(CN206) ⑧
(See page 31.)
R705
C710
D708
C716
C708
C707
R702
R704
Q702
R706
R707
IC703
C705
Q402
R422
C410
Q703
R712
R711
C706
D403
R421
CN405
C718
C717
TO CD MAIN BOARD(CN301) ⑦
(See page 31.)
R430
R423
D404
R424
C405
R411
R425
D401
C409
R429
R428
C403
C402
X401
R409
R412
R427
R426
C404
Q401
R410
E MODEL
D409
D408
D407
D406
D405
R408
R407
R406
R405
D413
D411
R404
R403
IC401
E MODEL
R413
R416
R417
R402
R401
L401
C401
D402
R419
C406
CN404
C408
C407
CN403
CN402
CN401
1-644-143
TP
[POWER BOARD]
＊NOT REPLACEABLE: BUILT IN TRANSFORMER
CN801
PT801 POWER TRANSFORMER
D804
D803
C804
IC803
C805
CN803
ORG
BRN
YEL
BLU
WHT
RED
⑨ TO CD MAIN BOARD(CN203)
(See page 31.)
CN802
C803
C802
D802
D801
C801
IC801
IC802
(CHASSIS)
1-644-145
FL501 FLUORESCENT INDICATOR TUBE
1G 16G 15G 14G 13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G
SLEEP
TUNED STEREO
REPEAT MONO
MAIN SUB
[DISPLAY BOARD]
CN501
C501
C503
IC501
R501
C502
1-644-144
⑩ TO CD MAIN BOARD(CN302)
(See page 31.)
[SYSTEM POWER BOARD]
S601 SYSTEM POWER ON/STANDBY
S602 BAND
CN601
1-644-147
[PANEL(L) BOARD]
CN602
S611 SLEEP
S603
S604
S605 REC
TIMER SET
S607 CONTROL/CHECK/CLEAR
S608
S609
S610 NEXT
S606 CLOCK
TIME/DAY
1-644-146
[PANEL(R)BOARD]
CN603
CN604
S621
R603
S622
S623
S613 TUNING/PRESET
R601
CONTINUE
R602
SHUFFLE
PROGRAM
R604
D602
D603
D604
S614
S612
D601
S617 CHECK MEMORY
S618 CLEAR CHARACTER
S616 TIME SHIFT
S619 STEREO/MONO ENTER
S615
S620
1-641-516

3-9. PRINTED WIRING BOARDS—CD SECTION • Refer to page 19 for Semiconductor Lead Layouts.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
[LOADING BOARD]
S292 LOAD IN
S291 LOAD OUT
CN291
M103 LOADING MOTOR
WHT
GRY
GRY
GRY
GRY
1-634-461-
11
[BD BOARD]
IC101
IC102
Q101
M102 SLED MOTOR
M101 SPINDLE MOTOR
S101 LIMIT IN
RV101
RV102
CN101
CN102
1-632-203-
22
OPTICAL PICK-UP BLOCK (KSS-240A)
TO PANEL (R) BOARD (CN604) (See page 22.)
⑩
[CD MAIN BOARD]
CN302
X301
IC301
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
CN201
CN202
CN203
CN204
CN205
CN206
CN207
CN208
CN209
CN210
CN211
ADJ
1-641-515-
15
TO TUNER BOARD (CN5) (See page 12, 14.)
⑥
TO ST CONTROL BOARD(CN405) (See page 21.)
⑦
TO ST CONTROL BOARD(CN406) (See page 21.)
⑧
TO POWER BOARD (CN803) (See page 22.)
⑨
TP
DIGITAL OUTPUT OPTICAL
SYSTEM CONTROL 1 FROM TA-VF1
① TO TUNER BOARD (CN4) (See page 12—14.)
② TO TUNER BOARD (CN3) (See page 12—14.)
(See page 12—14.) ④ TO TUNER BOARD(CN2)
(See page 12—14.) ⑤ TO TUNER BOARD(CN1)
BLK
RED
WHT
(CHASSIS)
AEP,Germany MODEL
TM901 ANTENNA
FM 75Ω COAXIAL
AM
[ANTENNA] BOARD
CN901
WHT
RED
BLK
(CHASSIS)
1-644-148-
11
E MODEL
TM901 ANTENNA
FM
75Ω
AM
[ANTENNA] BOARD
CN901
WHT
RED
BLK
(CHASSIS)
1-644-148-
11

• Semiconductor Location

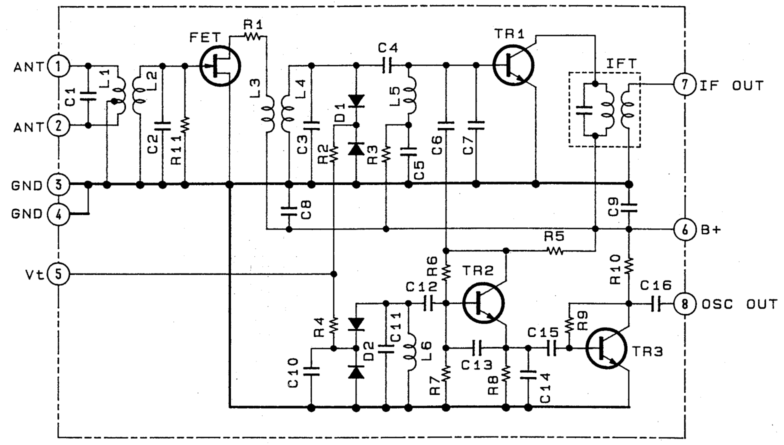
Ref. No.	Location
D202	F-8
D203	F-6
D204	H-6
D205	I-8
D301	C-6
D302	B-8
IC101	D-2
IC102	D-3
IC201	D-8
IC202	E-7
IC203	F-7
IC204	H-8
IC205	H-7
IC206	F-6
IC207	J-6
IC208	I-8
IC209	J-7
IC301	B-7
Q101	D-2
Q205	I-7
Q206	I-7
Q207	H-7
Q208	G-7
Q210	I-6
Q211	H-6
Q212	I-6
Q301	B-9

Note:

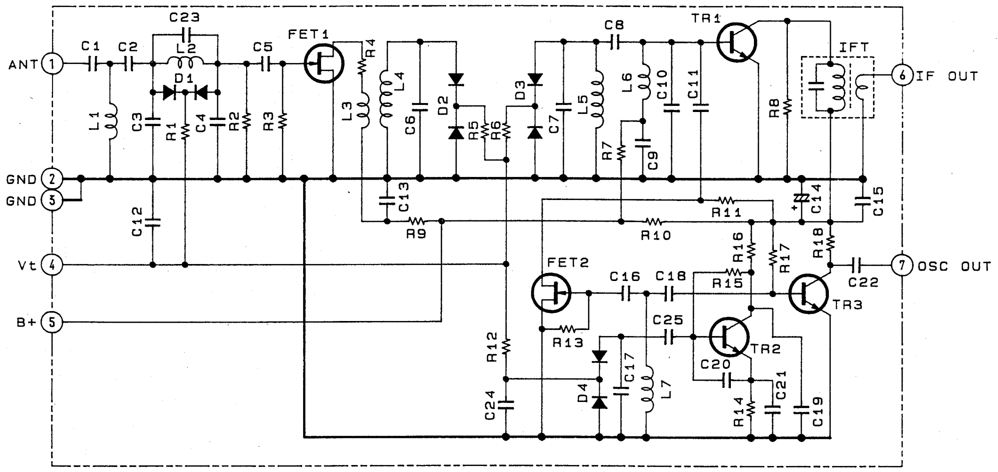
- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ○ : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

• Front End Schematic Diagrams

FE1 (AEP, E model)

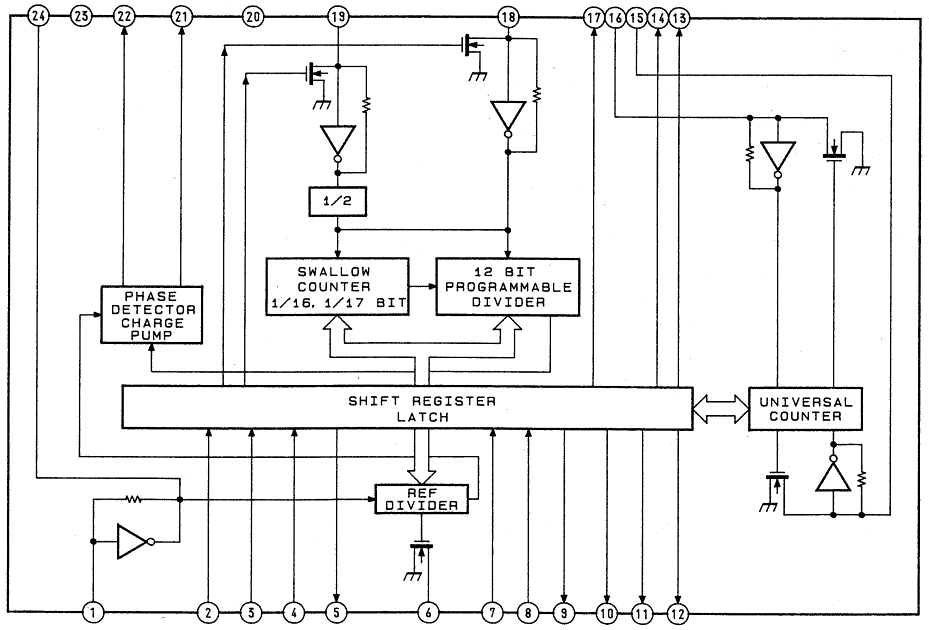

ANT 1
ANT 2
GND 3
GND 4
Vt 5
FET
R1
C4
TR1
IFT
7 IF OUT
6 B+
8 OSC OUT
TR2
TR3
C1
L1
L2
C2
R11
L3
L4
C3
R2
D1
R3
L5
C5
C6
C7
C8
C9
R5
R6
C12
R10
C16
R4
D2
C11
L6
C13
C15
R9
C10
R7
R8
C14

FE1 (E model)

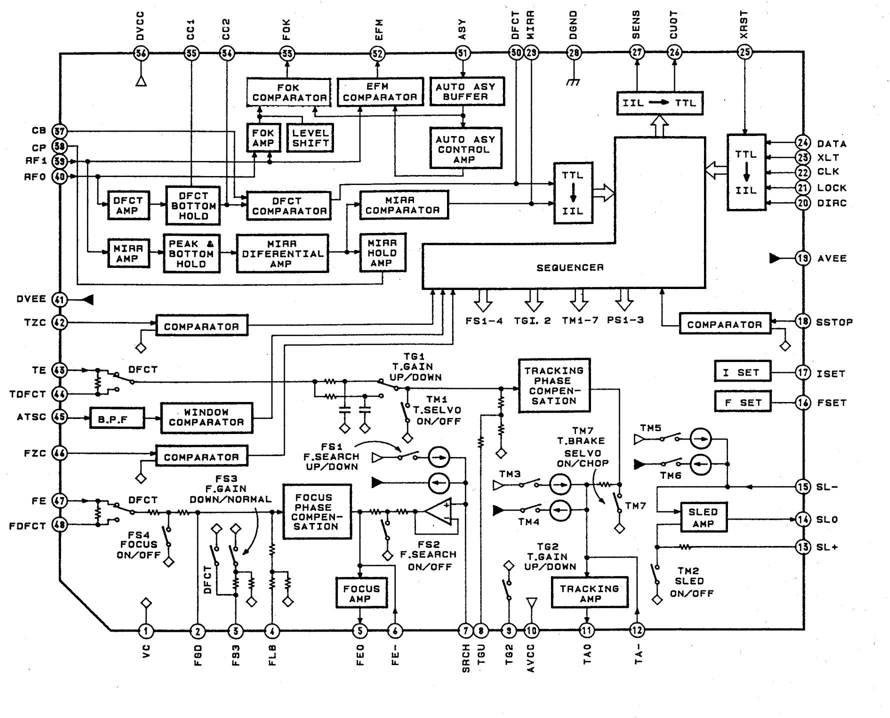

ANT 1
GND 2
GND 5
Vt 4
B+ 3
C23
C1
C2
L2
D1
C5
FET1
R4
C8
TR1
IFT
6 IF OUT
7 OSC OUT
L1
C3
R1
C4
R2
R3
L3
L4
C6
D2
R5
R6
D3
C7
L5
L6
C10
C11
R7
C9
R8
C12
C13
R9
R10
R11
C14
C15
FET2
C16
C18
R16
R15
R17
R18
C22
TR3
C25
TR2
R12
R13
C20
D4
C17
L7
R14
C21
C19
C24

• IC Block Diagram

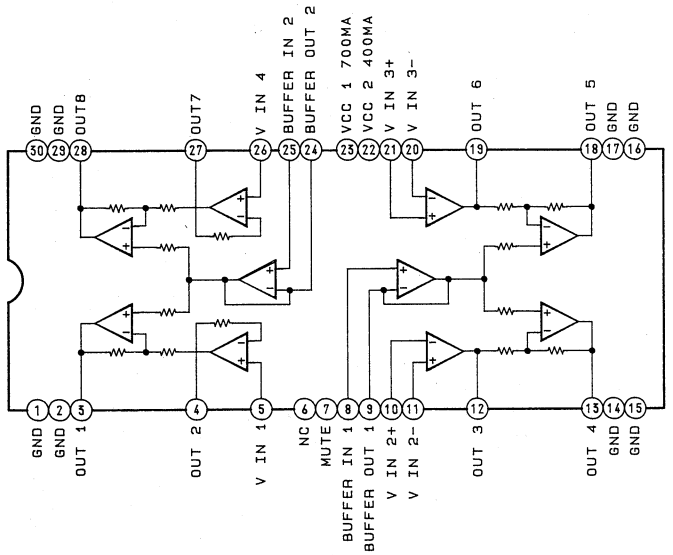
IC21 LC7218M


24
23
22
21
20
19
18
17
16
15
14
13
1/2
PHASE DETECTOR CHARGE PUMP
SWALLOW COUNTER 1/16, 1/17 BIT
12 BIT PROGRAMMABLE DIVIDER
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
REF DIVIDER
1
2
3
4
5
6
7
8
9
10
11
12

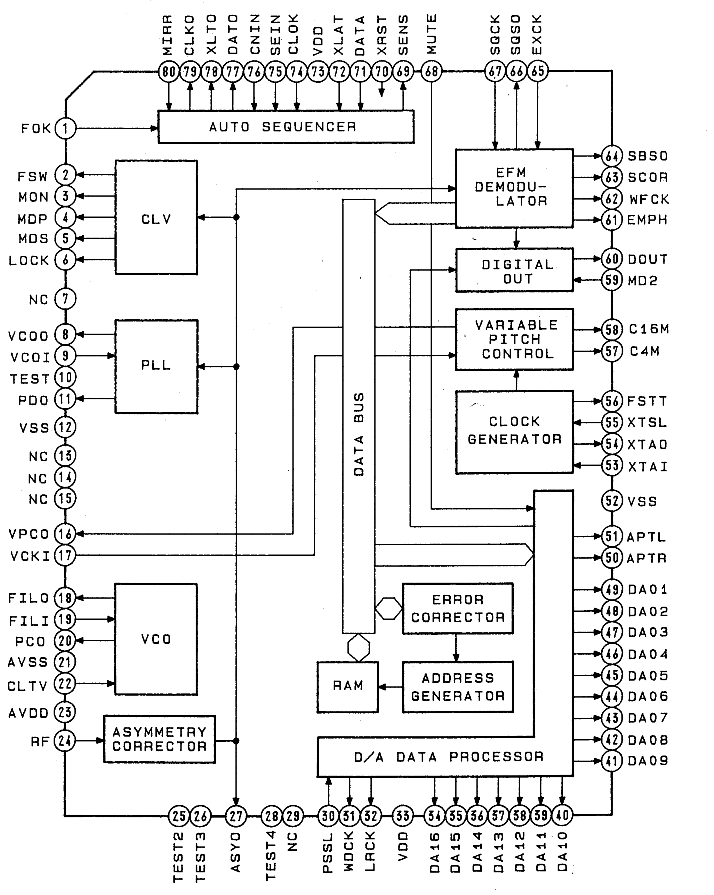
IC101 CXA1372AQ

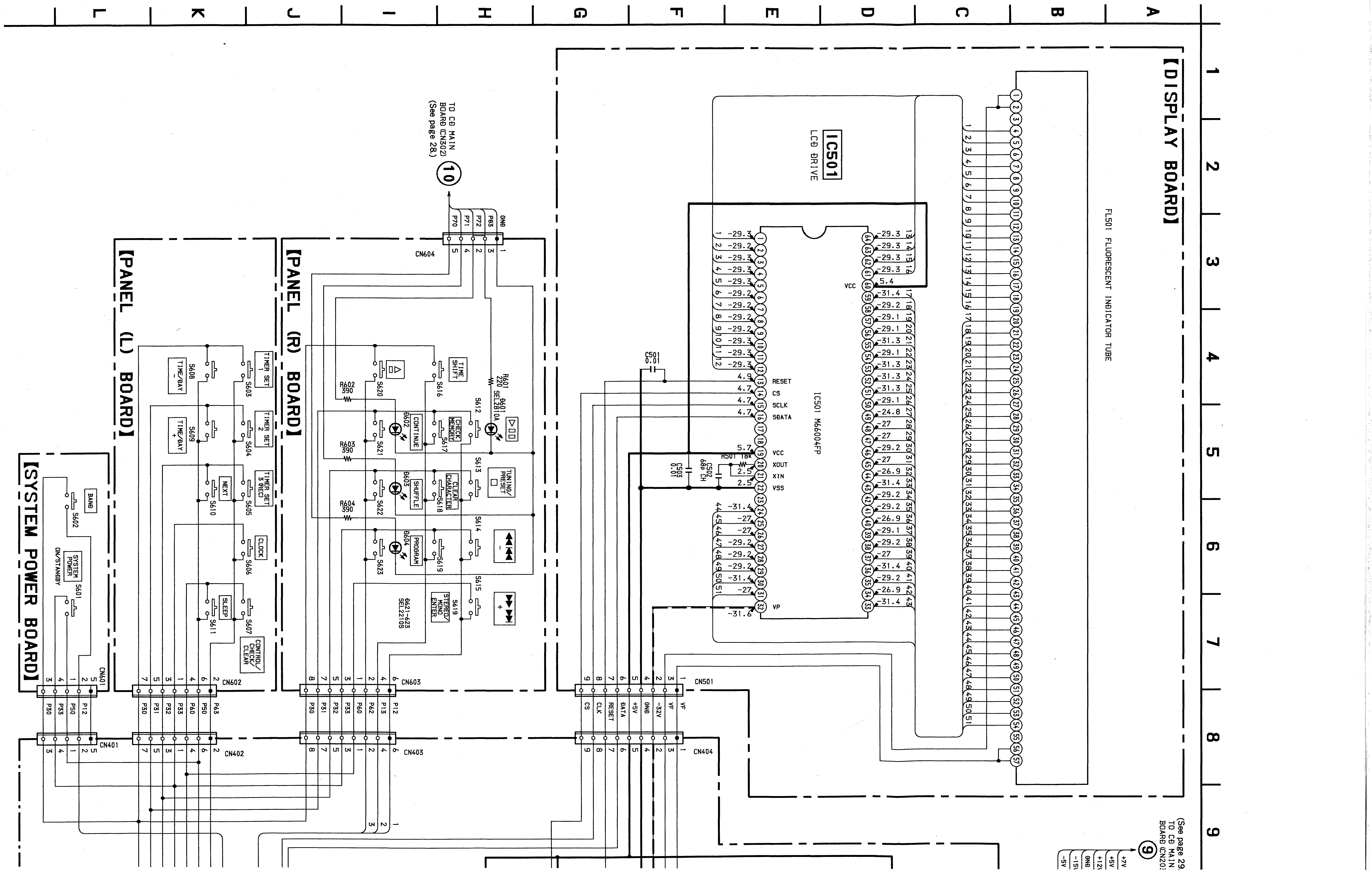

DVCC 54
CC1 55
CC2 34
FOK 53
EFM 52
ASY 51
DFCT MIRR 50 29
DGND 28
SENS 27
CUOT 26
XRST 25
CB 57
CP 58
RF1 59
RFO 60
DVEE 41
TZC 42
TE 43
TDFCT 44
ATSC 45
FZC 46
FE 47
FDFCT 48
FOK COMPARATOR
EFM COMPARATOR
AUTO ASY BUFFER
FOK AMP
LEVEL SHIFT
AUTO ASY CONTROL AMP
IIL → TTL
DFCT AMP
DFCT BOTTOM HOLD
DFCT COMPARATOR
MIRR COMPARATOR
TTL ↓ IIL
MIRR AMP
PEAK & BOTTOM HOLD
MIRR DIFERENTIAL AMP
MIRR HOLD AMP
SEQUENCER
TTL ↓ IIL
24 DATA
23 XLT
22 CLK
21 LOCK
20 DIRC
19 AVEE
FS1-4 TG1, 2 TM1-7 PS1-3
COMPARATOR
COMPARATOR
18 SSTOP
DFCT
TG1 T.GAIN UP/DOWN
TM1 T.SELVO ON/OFF
TRACKING PHASE COMPEN-SATION
I SET
F SET
17 ISET
16 FSET
B.P.F
WINDOW COMPARATOR
COMPARATOR
FS1 F.SEARCH UP/DOWN
TM7 T.BRAKE SELVO ON/CHOP
TM5
TM6
TM3
TM4
TM7
15 SL-
14 SLO
13 SL+
FS3 F.GAIN DOWN/NORMAL
DFCT
FOCUS PHASE COMPEN-SATION
FS4 FOCUS ON/OFF
FS2 F.SEARCH ON/OFF
FOCUS AMP
TG2 T.GAIN UP/DOWN
TRACKING AMP
SLED AMP
TM2 SLED ON/OFF
1 VC
2 FEO
3 FS3
4 FLB
5 FEO
6 FE-
7 SRCH
8 TGU
9 TG2
10 AVCC
11 TAO
12 TA-

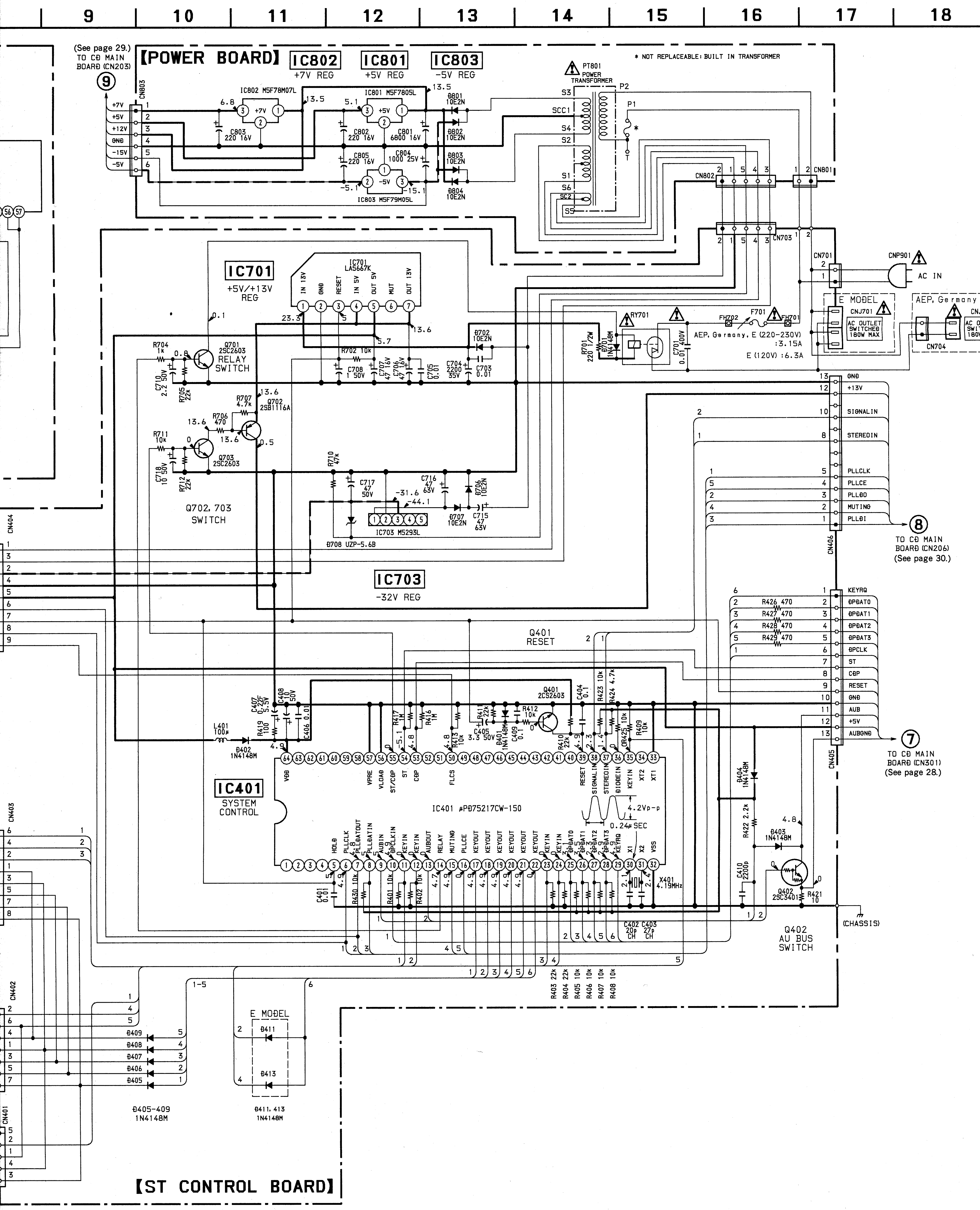
IC102 LA6532M

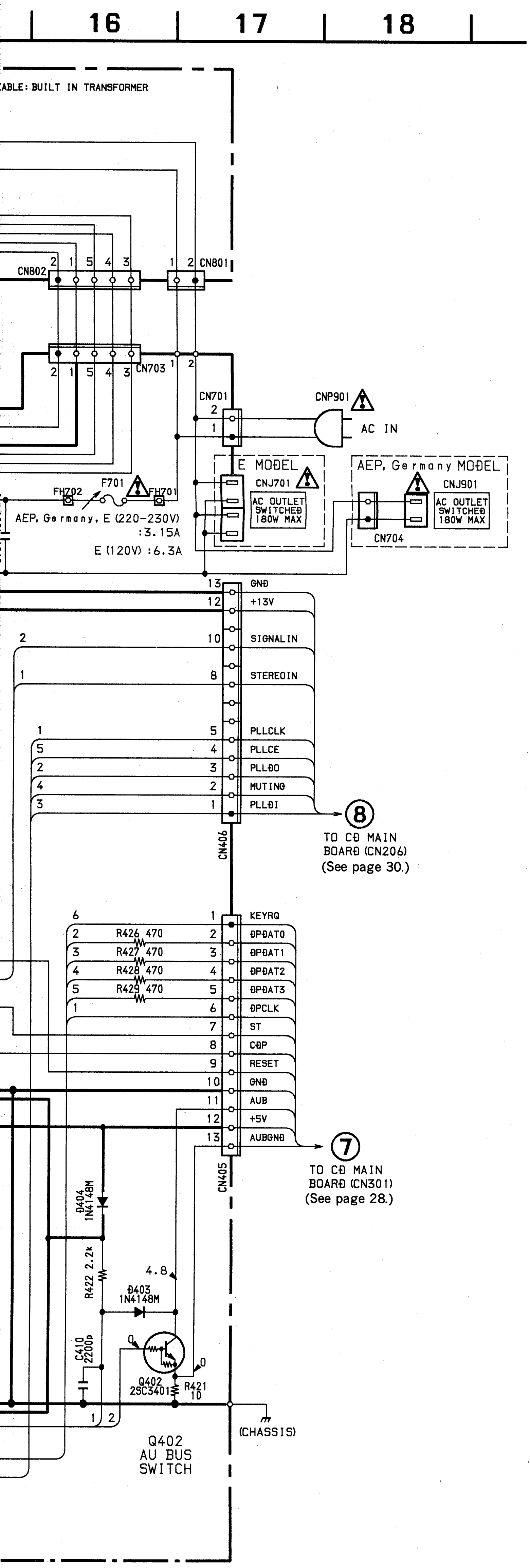

GND 30
GND 29
OUT8 28
OUT7 27
V IN 4 26
BUFFER IN 2 25
BUFFER OUT 2 24
VCC 1 700MA 23
VCC 2 400MA 22
V IN 3+ 21
V IN 3- 20
OUT 6 19
OUT 5 18
GND 17
GND 16
1 GND
2 GND
3 OUT 1
4 OUT 2
5 V IN 1
6 NC
7 MUTE
8 BUFFER IN 1
9 BUFFER OUT 1
10 V IN 2+
11 V IN 2-
12 OUT 3
13 OUT 4
14 GND
15 GND

IC201 CXD2500AQ


MIRR 80
CLKO 79
XLTO 78
DATO 77
CNIN 76
SEIN 75
CLOK 74
VDD 73
XLAT 72
DATA 71
XRST 70
SENS 69
MUTE 68
SQCK 67
SQSO 66
EXCK 65
FOK 1
FSW 2
MON 3
MDP 4
MDS 5
LOCK 6
NC 7
VCOO 8
VCOI 9
TEST 10
PDO 11
VSS 12
NC 13
NC 14
NC 15
VPCO 16
VCKI 17
FILO 18
FILI 19
PCO 20
AVSS 21
CLTV 22
AVDD 23
RF 24
AUTO SEQUENCER
CLV
PLL
VCO
ASYMMETRY CORRECTOR
EFM DEMODU-LATOR
DIGITAL OUT
VARIABLE PITCH CONTROL
CLOCK GENERATOR
DATA BUS
ERROR CORRECTOR
RAM
ADDRESS GENERATOR
D/A DATA PROCESSOR
64 SBSO
63 SCOR
62 WFCK
61 EMPH
60 DOUT
59 MD2
58 C16M
57 C4M
56 FSTT
55 XTSL
54 XTAO
53 XTAI
52 VSS
51 APTL
50 APTR
49 DA01
48 DA02
47 DA03
46 DA04
45 DA05
44 DA06
43 DA07
42 DA08
41 DA09
25 TEST2
26 TEST3
27 ASYO
28 TEST4
29 NC
30 PSSL
31 WDCK
32 LRCK
33 VDD
34 DA16
35 DA15
36 DA14
37 DA13
38 DA12
39 DA11
40 DA10

[DISPLAY BOARD]
FL501 FLUORESCENT INDICATOR TUBE
IC501 LCD DRIVE
IC501 M66004FP
RESET
CS
SCLK
SDATA
VCC
XOUT
XIN
VSS
VP
C501 0.01
C502 68P CH
C503 0.01
R501 18k
CN501
CS
CLK
RESET
DATA
+5V
GND
-32V
VF
CN404
[PANEL (R) BOARD]
CN603
CN604
P70
P71
P72
P83
GND
TO CD MAIN BOARD (CN302) (See page 28.)
10
R601 220
R602 390
R603 390
R604 390
D601 SEL2810A
D602
D603
D604
D621-623 SEL2210S
S612
S613
S614
S615
S616 TIME SHIFT
S617 CHECK MEMORY
S618 CLEAR CHARACTER
S619 STEREO/MONO ENTER
S620
S621 CONTINUE
S622 SHUFFLE
S623 PROGRAM
TUNING/PRESET
P30
P31
P32
P33
P60
P62
P13
P12
CN403
[PANEL (L) BOARD]
CN602
S603 TIMER SET 1
S604 TIMER SET 2
S605 TIMER SET 3 REC
S606 CLOCK
S607 CONTROL/CHECK/CLEAR
S608 TIME/DAY -
S609 TIME/DAY +
S610 NEXT
S611 SLEEP
P50
P63
CN402
[SYSTEM POWER BOARD]
CN601
S601 SYSTEM POWER ON/STANDBY
S602 BAND
CN401
(See page 29 TO CD MAIN BOARD (CN20
9
+7V
+5V
+12
GND
-15
-5V
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9


9
10
11
12
13
14
15
16
17
18
(See page 29.)
TO CD MAIN
BOARD (CN203)
⑨
【POWER BOARD】
IC802
+7V REG
IC801
+5V REG
IC803
-5V REG
* NOT REPLACEABLE: BUILT IN TRANSFORMER
PT801
POWER
TRANSFORMER
IC802 M5F78M07L
IC801 M5F7805L
IC803 M5F79M05L
CN803
+7V
+5V
+12V
GND
-15V
-5V
CN802
CN703
CN801
CN701
CNP901
AC IN
E MODEL
CNJ701
AC OUTLET
SWITCHED
180W MAX
AEP, Germany
CN704
RY701
F701
FH702
FH701
AEP, Germany, E (220-230V)
:3.15A
E (120V) :6.3A
IC701
+5V/+13V
REG
IC701
LA5667K
IN 13V
GND
RESET
IN 5V
OUT 5V
MUT
OUT 13V
Q701
2SC2603
RELAY
SWITCH
Q702
2SB1116A
Q703
2SC2603
Q702, 703
SWITCH
IC703 M5293L
D708 UZP-5.6B
IC703
-32V REG
Q401
RESET
CN404
CN406
GND
+13V
SIGNALIN
STEREOIN
PLLCLK
PLLCE
PLLDO
MUTING
PLLDI
⑧
TO CD MAIN
BOARD (CN206)
(See page 30.)
CN405
KEYRQ
DPDAT0
DPDAT1
DPDAT2
DPDAT3
DPCLK
ST
CDP
RESET
GND
AUB
+5V
AUBGND
⑦
TO CD MAIN
BOARD (CN301)
(See page 28.)
IC401
SYSTEM
CONTROL
IC401 μPD75217CW-150
VDD
VPRE
VLOAD
ST/CDP
ST
CDP
FLCS
RESET
SIGNALIN
STEREOIN
DIODEIN
KEYIN
XT2
XT1
HOLD
PLLCLK
PLLDATOUT
PLLDATIN
AUBIN
DPCLKIN
KEYIN
KEYIN
AUBOUT
RELAY
MUTING
PLLCE
KEYOUT
KEYOUT
KEYOUT
KEYOUT
KEYOUT
KEYOUT
KEYIN
KEYIN
DPDAT0
DPDAT1
DPDAT2
DPDAT3
KEYRQ
X1
X2
VSS
X401
4.19MHz
4.2Vp-p
0.24μ SEC
Q401
2SC2603
Q402
2SC3401
Q402
AU BUS
SWITCH
(CHASSIS)
CN403
CN402
CN401
D405-409
1N4148M
D411, 413
1N4148M
E MODEL
【ST CONTROL BOARD】


16
17
18
ABLE: BUILT IN TRANSFORMER
CN802
CN801
CN703
CN701
CNP901
AC IN
E MODEL
CNJ701
AC OUTLET SWITCHED 180W MAX
AEP, Germany MODEL
CNJ901
AC OUTLET SWITCHED 180W MAX
CN704
FH702
F701
FH701
AEP, Germany, E (220–230V) :3.15A
E (120V) :6.3A
CN406
GND
+13V
SIGNALIN
STEREOIN
PLLCLK
PLLCE
PLLDO
MUTING
PLLDI
⑧
TO CD MAIN BOARD (CN206) (See page 30.)
CN405
KEYRQ
DPDAT0
DPDAT1
DPDAT2
DPDAT3
DPCLK
ST
CDP
RESET
GND
AUB
+5V
AUBGND
⑦
TO CD MAIN BOARD (CN301) (See page 28.)
R426 470
R427 470
R428 470
R429 470
D404 1N4148M
R422 2.2k
4.8
D403 1N4148M
C410 2200p
Q402 2SC3401
R421 10
(CHASSIS)
Q402 AU BUS SWITCH

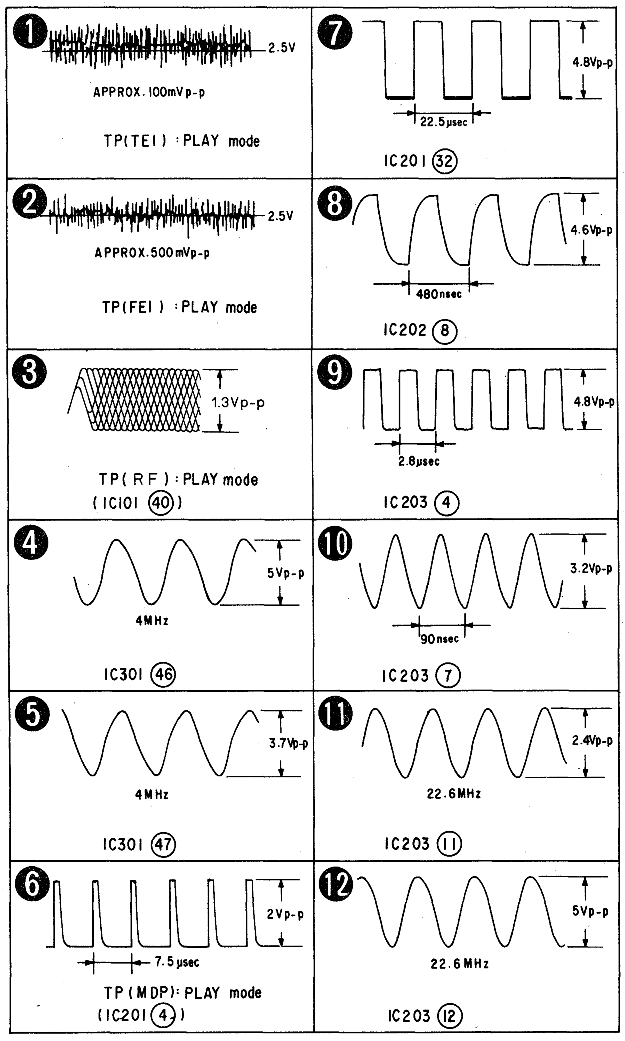
Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- ▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : CD STOP
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

- **Waveforms**



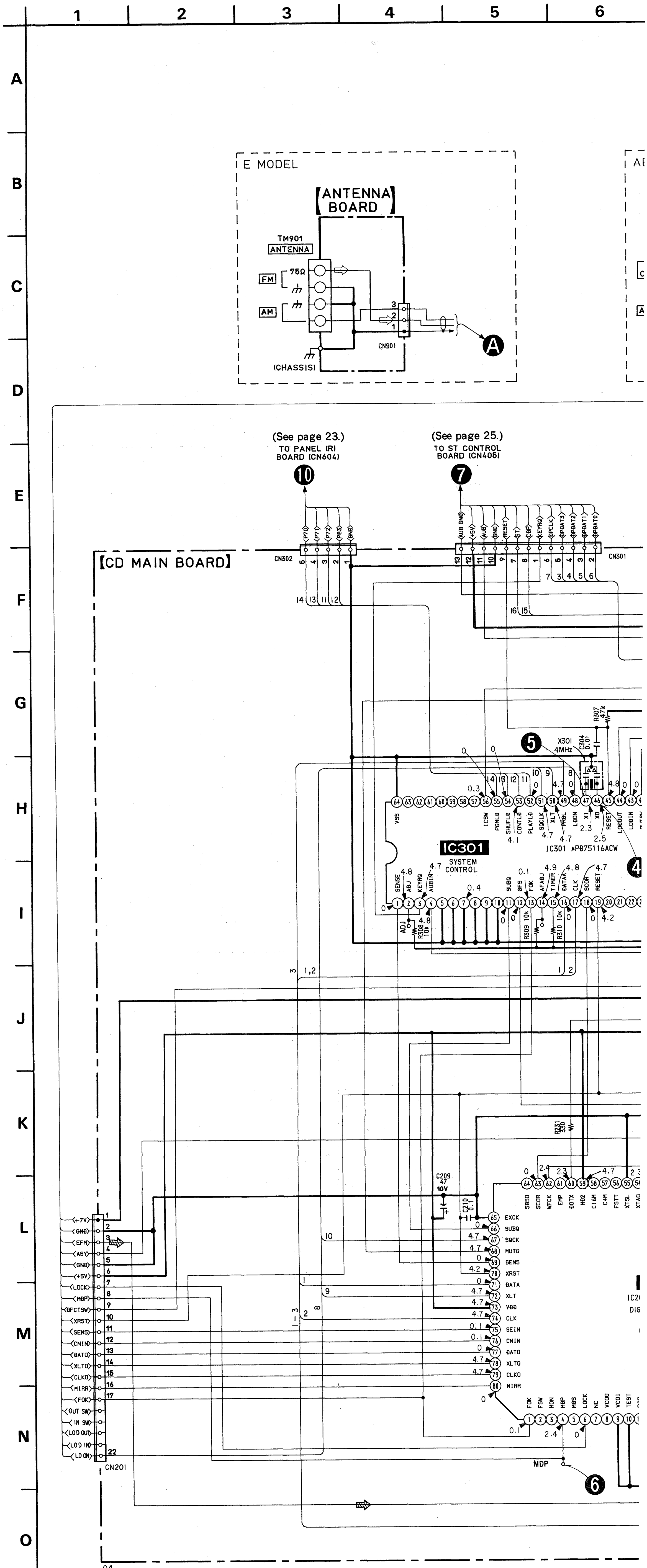
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

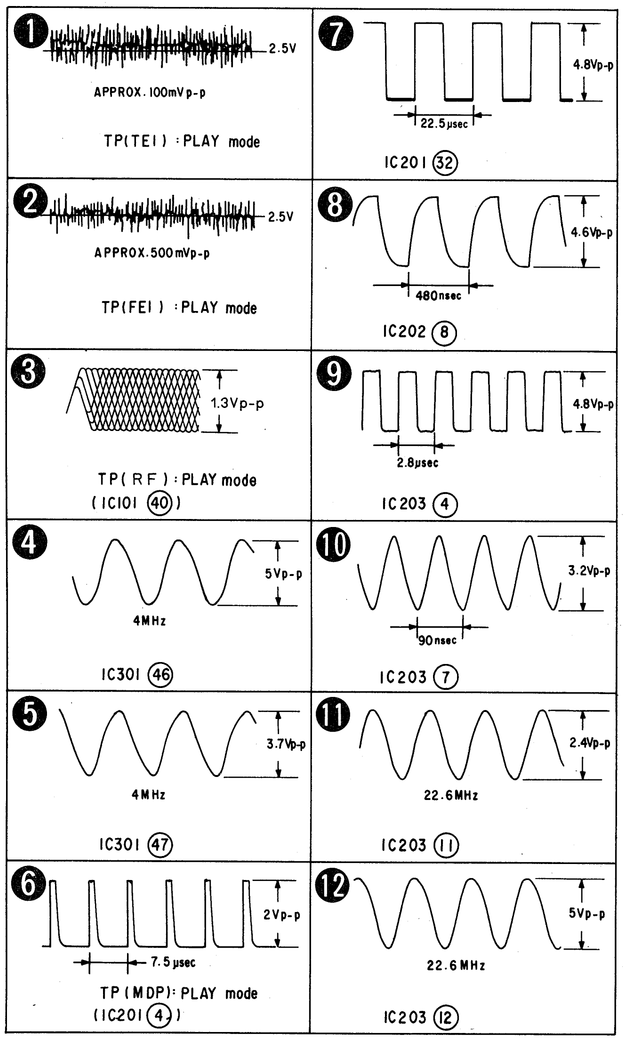
- ▬▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : CD STOP
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨ : FM
  - ⇨ : CD

3-8. SCHEMATIC DIAGRAM—CD SECTION— • Refer to page 33 for IC Block Diagrams.



1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
E MODEL
ANTENNA BOARD
TM901 ANTENNA
75Ω
FM
AM
(CHASSIS)
CN901
Ⓐ
(See page 23.) TO PANEL (R) BOARD (CN604)
⑩
(See page 25.) TO ST CONTROL BOARD (CN406)
⑦
CD MAIN BOARD
CN302
CN301
P70
P71
P72
P83
GND
AUB GND
+5V
AUB
GND
RESET
ST
CSP
KEYRQ
BPCLK
BPBAT3
BPBAT2
BPBAT1
BPBAT0
X301 4MHz
C304 0.01
R307 47k
⑤
IC301
SYSTEM CONTROL
IC301 μPB75116ACW
VSS
ICSW
PGMLØ
SHUFLØ
CONTLØ
PLAYLØ
SQCLK
XLT
PRGL
LØON
X1
XO
RESET
LOØOUT
LOØIN
SENSE
ABJ
KEYRQ
AUBIN
SUBQ
GFS
FOK
AFAØJ
TIMER
BATAA
CLK
SCOR
RESET
ADJ
R308 4.8 10k
R309 10k
R310 10k
④
R231 330
C209 47 10V
C210 0.1
EXCK
SUBQ
SQCK
MUTG
SENS
XRST
DATA
XLT
VDD
CLK
SEIN
CNIN
DATO
XLTO
CLKO
MIRR
FOK
FSW
MON
MDP
MDS
LOCK
NC
VCOO
VCOI
TEST
SBSO
SCOR
WFCK
EMP
BOTX
MD2
C16M
C4M
FSTT
XTSL
XTAO
IC2
DIG
MDP
⑥
CN201
+7V
GND
EFM
ASY
GND
+5V
LOCK
MDP
BFCTSW
XRST
SENS
CNIN
DATO
XLTO
CLKO
MIRR
FOK
OUT SW
IN SW
LOD OUT
LOD IN
LD ON
04

• Waveforms



1
2.5V
APPROX. 100mVp-p
TP(TEI) : PLAY mode
7
4.8Vp-p
22.5μsec
IC201 32
2
2.5V
APPROX. 500mVp-p
TP(FEI) : PLAY mode
8
4.6Vp-p
480nsec
IC202 8
3
1.3Vp-p
TP(RF) : PLAY mode
(IC101 40)
9
4.8Vp-p
2.8μsec
IC203 4
4
5Vp-p
4MHz
IC301 46
10
3.2Vp-p
90nsec
IC203 7
5
3.7Vp-p
4MHz
IC301 47
11
2.4Vp-p
22.6MHz
IC203 11
6
2Vp-p
7.5μsec
TP(MDP): PLAY mode
(IC201 4)
12
5Vp-p
22.6MHz
IC203 12

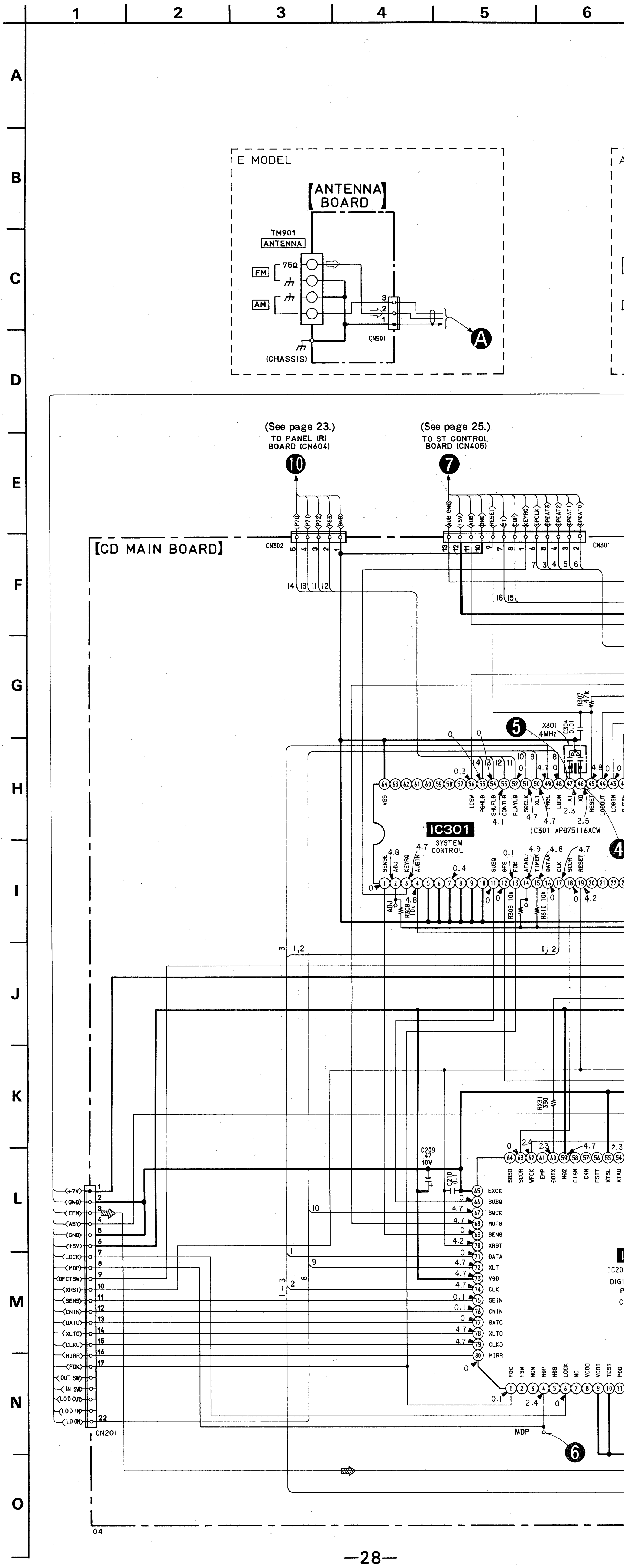
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¹/₄W or less unless otherwise specified.
- △ : internal component.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

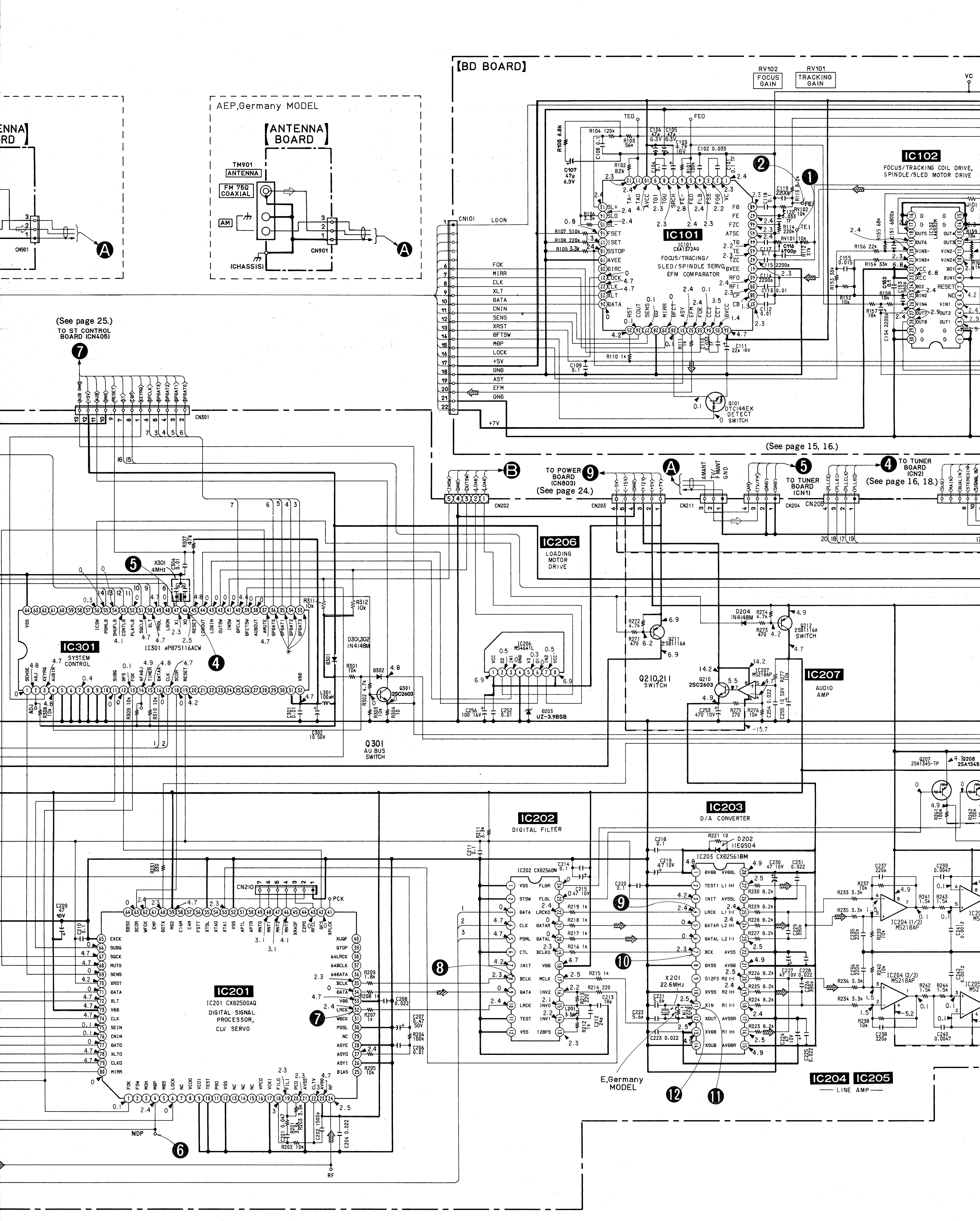
- ▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : CD STOP
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ⇨ : CD

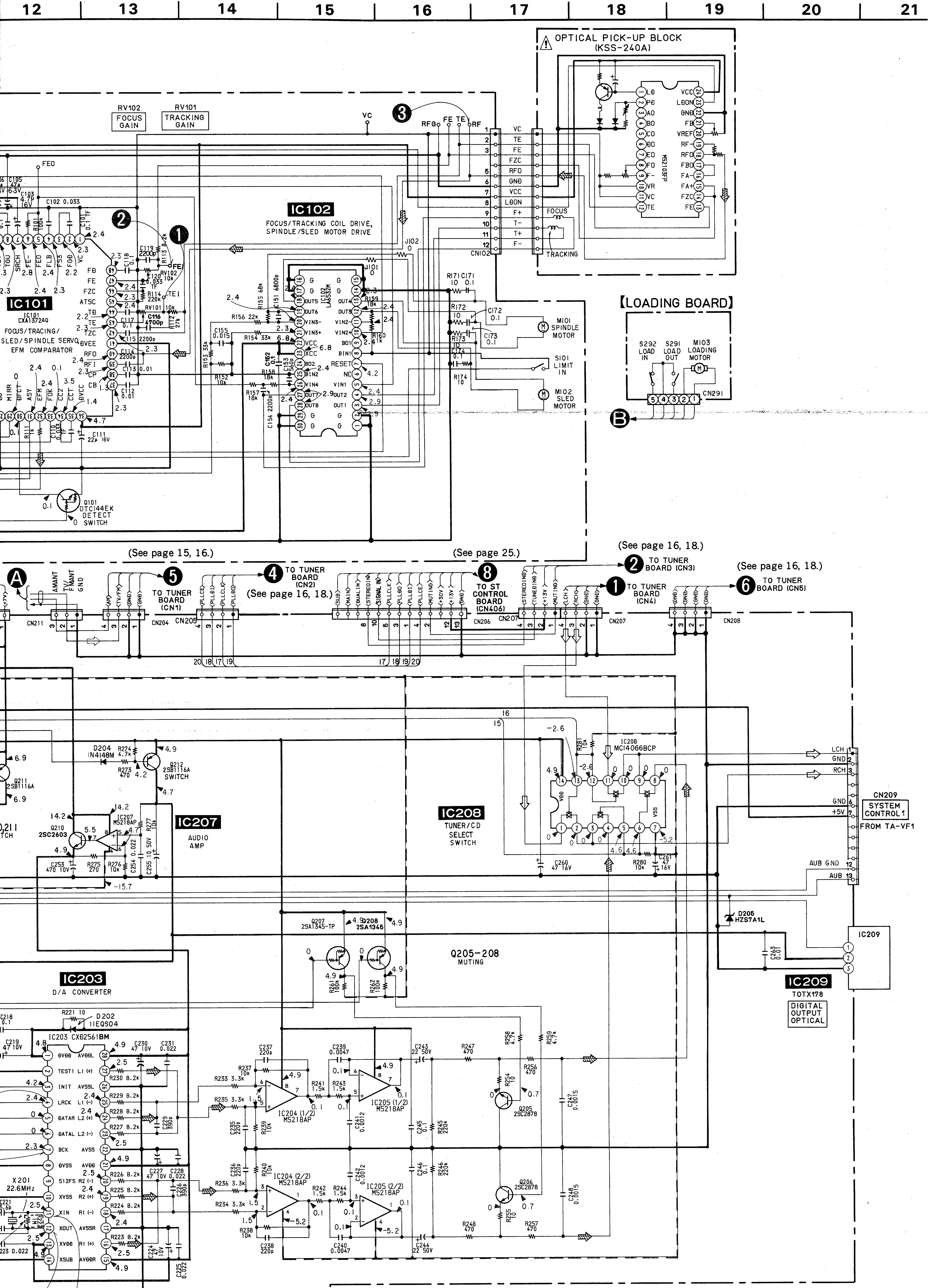
3-8. SCHEMATIC DIAGRAM—CD SECTION— • Refer to page 33 for IC Block Diagrams.



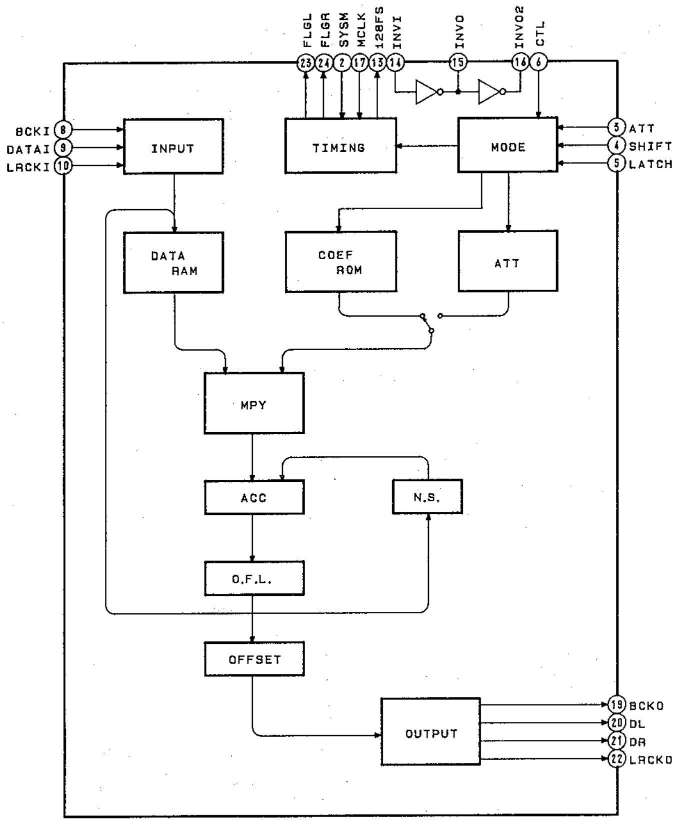
1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
E MODEL
ANTENNA BOARD
TM901 ANTENNA
FM
75Ω
AM
(CHASSIS)
CN901
A
(See page 23.)
TO PANEL (R) BOARD (CN604)
10
(See page 25.)
TO ST CONTROL BOARD (CN406)
7
CD MAIN BOARD
CN302
CN301
P70
P71
P72
P83
GND
AUB GND
+5V
AUB
GND
RESET
ST
CBP
KEYRQ
BPCLK
BPDAT3
BPDAT2
BPDAT1
BPDAT0
5
X301 4MHz
C304 0.01
R307 47k
IC301
SYSTEM CONTROL
IC301 μPD75116ACW
VSS
ICSW
PGMLO
SHUFLO
CONTLO
PLAYLO
SQCLK
XLT
PRGL
LDON
X1
X0
RESET
LDOUT
LDDIN
SENSE
ADJ
KEYRQ
AUBIN
SUBQ
GFS
FOK
AFABJ
TIMER
DATA
CLK
SCOR
RESET
R308 10k
R309 10k
R310 10k
4
R231 330
C209 47 10V
C210 0.1
CN201
+7V
GND
EFM
ASY
GND
+5V
LOCK
MDP
BFCTSW
XRST
SENS
CNIN
DATO
XLTO
CLKO
MIRR
FOK
OUT SW
IN SW
LOD OUT
LOD IN
LD ON
EXCK
SUBQ
SQCK
MUTG
SENS
XRST
DATA
XLT
VDD
CLK
SEIN
CNIN
DATO
XLTO
CLKO
MIRR
SBSO
SCOR
WFCK
EMP
GDTX
MO2
C16M
C4M
FSTT
XTSL
XTAO
FOK
FSW
MON
MDP
MDS
LOCK
NC
VCOO
VCOI
TEST
PDO
IC20
DIGI
MDP
6
04

fer to page 33 for IC Block Diagrams.

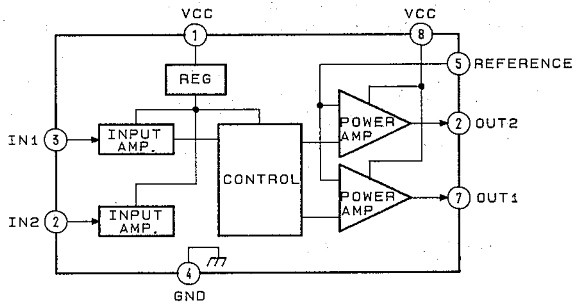

4
5
6
7
8
9
10
11
12
13
14
15
ENNA
RD
CN901
AEP,Germany MODEL
ANTENNA BOARD
TM901 ANTENNA
FM 75Ω COAXIAL
AM
(CHASSIS)
CN901
【BD BOARD】
RV102 FOCUS GAIN
RV101 TRACKING GAIN
IC101
IC101 CXA1372AQ
FOCUS/TRACING/SLED/SPINDLE SERVO, EFM COMPARATOR
IC102
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
CN101
LDON
FOK
MIRR
CLK
XLT
DATA
CNIN
SENS
XRST
DFTSW
MDP
LOCK
+5V
GND
ASY
EFM
GND
+7V
Q101 DTC144EK DETECT SWITCH
(See page 25.)
TO ST CONTROL BOARD (CN405)
CN301
(See page 15, 16.)
TO POWER BOARD (CN803) (See page 24.)
TO TUNER BOARD (CN1)
TO TUNER BOARD (CN2) (See page 16, 18.)
CN202
CN203
CN211
CN204
CN205
AMANT
TV/FMANT
GND
IC206
LOADING MOTOR DRIVE
IC206 M54641L
D203 UZ-3.9BSB
IC301
SYSTEM CONTROL
IC301 µPD75116ACW
X301 4MHz
D301,302 1N4148M
Q301 AU BUS SWITCH
Q301 2SC2603
Q210,211 SWITCH
Q211 2SB1116A
Q212 2SB1116A SWITCH
Q210 2SC2603
D204 1N4148M
IC207
AUDIO AMP
IC207 M5218AP
IC202
DIGITAL FILTER
IC202 CXD2560M
IC203
D/A CONVERTER
IC203 CXD2561BM
D202 11EQS04
X201 22.6MHz
E,Germany MODEL
IC201
IC201 CXD2500AQ
DIGITAL SIGNAL PROCESSOR, CLV SERVO
CN210
PCK
MDP
RF
IC204 IC205
— LINE AMP —
IC204 (1/2) M5218AP
IC204 (2/2) M5218AP
Q207 2SA1345-TP
Q208 2SA1345


12
13
14
15
16
17
18
19
20
21
OPTICAL PICK-UP BLOCK (KSS-240A)
M5210SFP
RV102 FOCUS GAIN
RV101 TRACKING GAIN
IC101
CXA1372AQ
FOCUS/TRACING/SLED/SPINDLE SERVO, EFM COMPARATOR
IC102
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
LA6532M
M101 SPINDLE MOTOR
S101 LIMIT IN
M102 SLED MOTOR
FOCUS
TRACKING
CN102
Q101 DTC144EK DETECT SWITCH
【LOADING BOARD】
S292 LOAD IN
S291 LOAD OUT
M103 LOADING MOTOR
CN291
(See page 15, 16.)
TO TUNER BOARD (CN1)
TO TUNER BOARD (CN2)
(See page 16, 18.)
(See page 25.)
TO ST CONTROL BOARD (CN406)
(See page 16, 18.)
TO TUNER BOARD (CN3)
TO TUNER BOARD (CN4)
(See page 16, 18.)
TO TUNER BOARD (CN5)
CN211
CN204
CN205
CN206
CN207
CN208
IC207
AUDIO AMP
IC208
TUNER/CD SELECT SWITCH
MC14066BCP
IC203
D/A CONVERTER
CXD2561BM
X201 22.6MHz
Q205-208 MUTING
IC204 IC205
LINE AMP
M5218AP
CN209
SYSTEM CONTROL 1
FROM TA-VF1
IC209
TOTX178
DIGITAL OUTPUT OPTICAL
D205 HZS7A1L

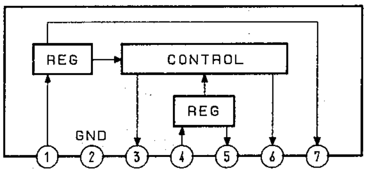
IC202 CXD2560M


FLGL
FLGR
SYSM
MCLK
128FS
INVI
INVO
INVO2
CTL
23
24
2
17
13
14
15
16
6
BCKI 8
DATAI 9
LRCKI 10
INPUT
TIMING
MODE
3 ATT
4 SHIFT
5 LATCH
DATA RAM
COEF ROM
ATT
MPY
ACC
N.S.
O.F.L.
OFFSET
OUTPUT
19 BCKO
20 DL
21 DR
22 LRCKO

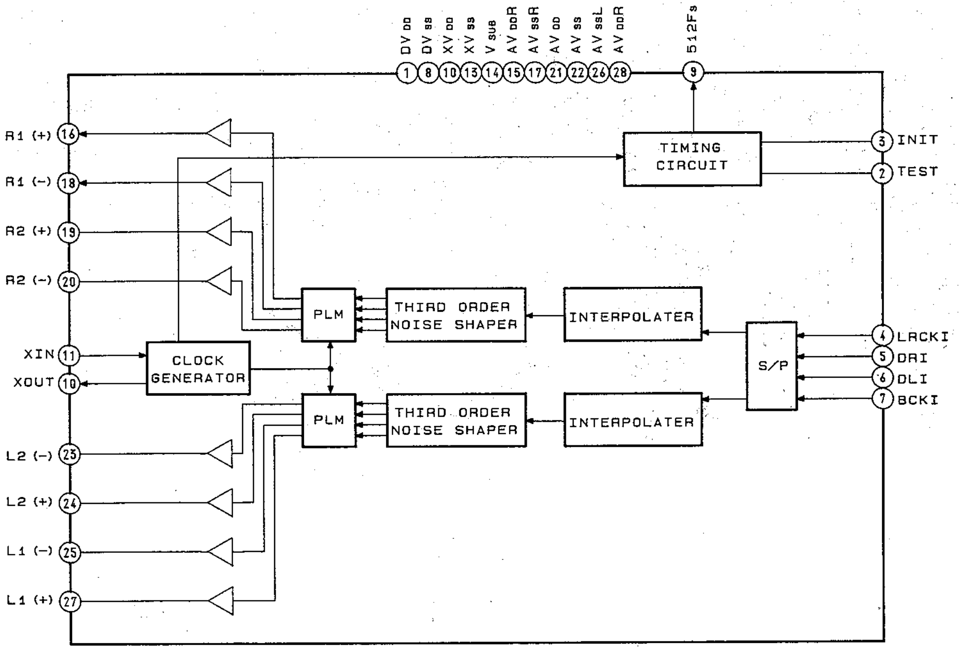
IC206 M54641L


VCC
1
VCC
8
5 REFERENCE
REG
IN1 3
INPUT AMP.
POWER AMP
2 OUT2
CONTROL
IN2 2
INPUT AMP.
POWER AMP
7 OUT1
4
GND

IC701 LA5667


REG
CONTROL
REG
GND
1
2
3
4
5
6
7

IC203 CXD2561BM


DV DD
DV SS
XV DD
XV SS
V SUB
AV DDR
AV SSR
AV DD
AV SS
AV SSL
AV DDR
512Fs
1
8
10
13
14
15
17
21
22
26
28
9
R1 (+) 16
R1 (−) 18
R2 (+) 19
R2 (−) 20
TIMING CIRCUIT
3 INIT
2 TEST
PLM
THIRD ORDER NOISE SHAPER
INTERPOLATER
XIN 11
XOUT 10
CLOCK GENERATOR
S/P
4 LRCKI
5 DRI
6 DLI
7 BCKI
PLM
THIRD ORDER NOISE SHAPER
INTERPOLATER
L2 (−) 23
L2 (+) 24
L1 (−) 25
L1 (+) 27

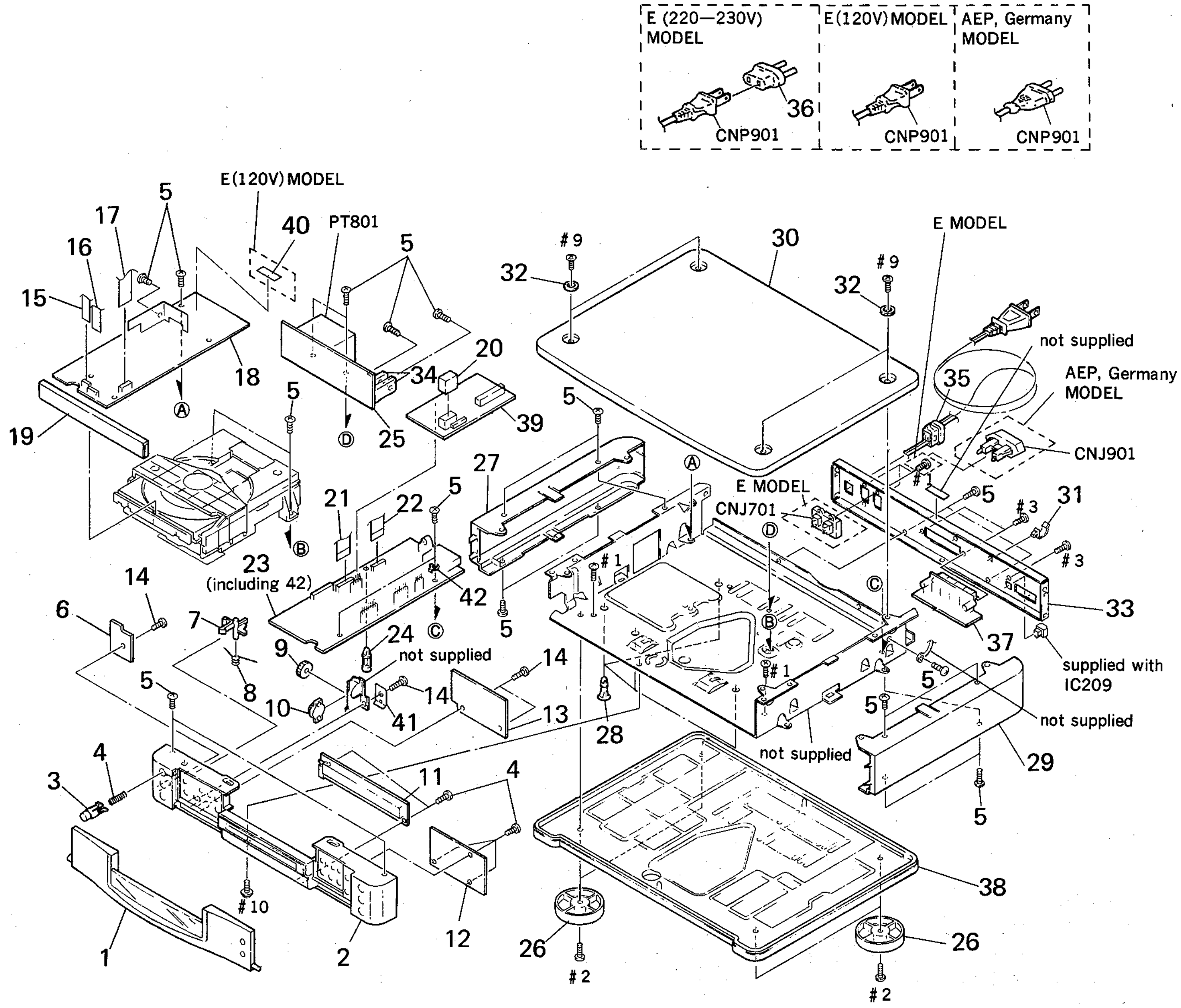
SECTION 4
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

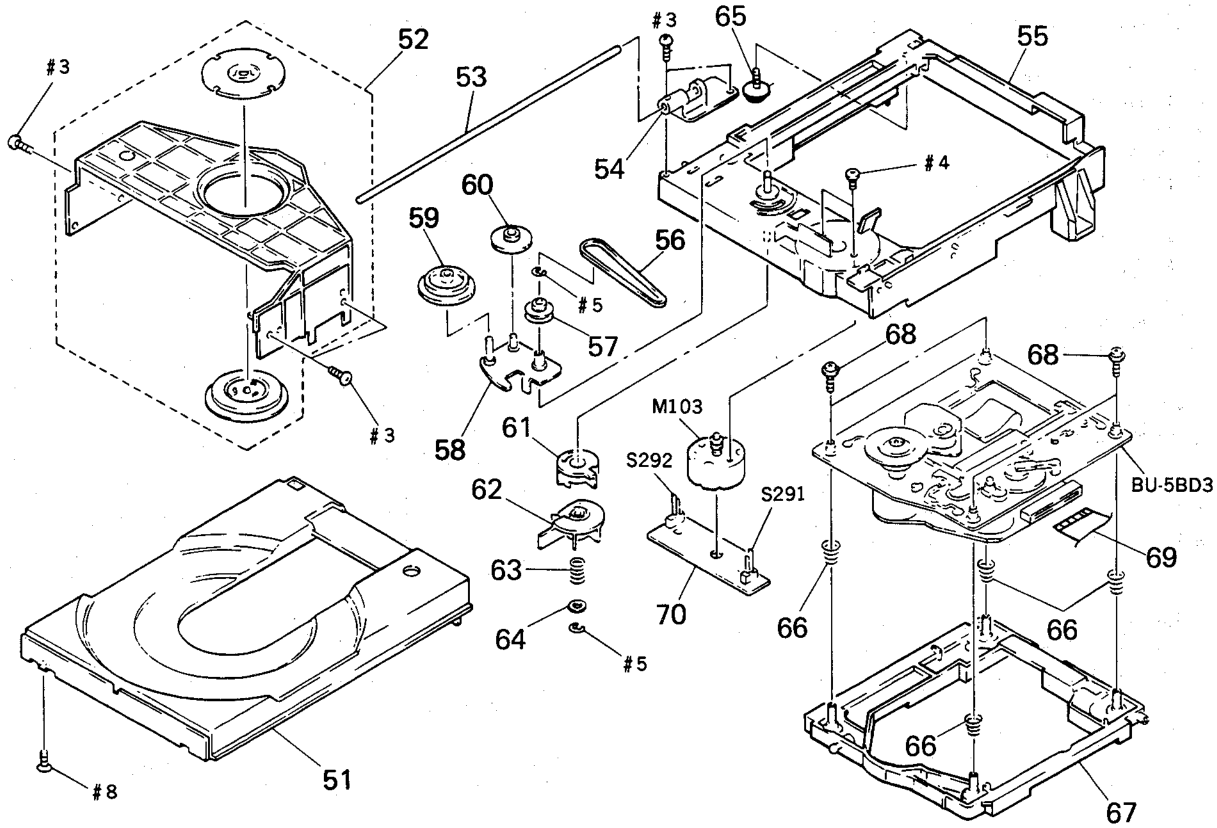
4-1. CHASSIS SECTION


E (220—230V) MODEL
36
CNP901
E(120V) MODEL
CNP901
AEP, Germany MODEL
CNP901
E(120V) MODEL
5
17
16
15
40
PT801
5
18
Ⓐ
19
5
34
20
39
Ⓓ
25
Ⓑ
#9
32
30
#9
32
E MODEL
not supplied
35
AEP, Germany MODEL
CNJ901
5
27
Ⓐ
E MODEL
CNJ701
Ⓓ
#1
5
#3
31
#3
33
21
22
5
23
(including 42)
42
Ⓒ
24
not supplied
14
6
7
5
8
9
10
14
41
14
13
5
Ⓑ
#1
Ⓒ
37
supplied with IC209
5
5
not supplied
28
not supplied
29
5
3
4
11
4
#10
1
2
12
26
#2
38
26
#2

Ref. No.	Part No.	Description	Remark
1	X-4941-995-1	LID (CDP) ASSY	
2	X-4942-727-1	PANEL ASSY, FRONT	
3	4-948-111-01	BUTTON (OPEN)	
4	4-948-750-01	SPRING, COMPRESSION	
5	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
* 6	1-644-147-11	SYSTEM POWER BOARD	
7	4-948-110-01	HOOK	
8	4-948-112-01	SPRING, TORSION	
9	4-948-109-01	GEAR	
10	3-319-224-01	DAMPER, SMALL	
* 11	1-644-144-11	DISPLAY BOARD	
* 12	1-641-516-13	PANEL (R) BOARD	
* 13	1-644-146-11	PANEL (L) BOARD	
14	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
15	1-575-730-31	WIRE, FLAT TYPE (5 CORE)	
16	1-590-032-31	WIRE, FLAT TYPE (7 CORE)	
17	1-690-588-31	WIRE, FLAT TYPE (9 CORE)	
* 18	A-4347-918-A	ST CONTROL BOARD, COMPLETE (E)	
* 18	A-4347-921-A	ST CONTROL BOARD, COMPLETE (Germany)	
* 18	A-4347-926-A	ST CONTROL BOARD, COMPLETE (AEP)	
19	X-4941-994-1	PANEL ASSY, LOADING	
* 20	3-348-833-01	CUSHION, RUBBER	
21	1-690-590-31	WIRE, FLAT TYPE (13 CORE)	
22	1-690-589-31	WIRE, FLAT TYPE (13 CORE)	
* 23	A-4347-920-A	CD MAIN BOARD, COMPLETE (E)	
* 23	A-4347-925-A	CD MAIN BOARD, COMPLETE (Germany)	
* 23	A-4347-932-A	CD MAIN BOARD, COMPLETE (AEP)	
* 24	4-944-316-21	HOLDER, PC BOARD	
* 25	1-644-145-11	POWER BOARD	
26	4-948-027-01	FOOT (DIA. 50)	
27	4-948-053-01	PLATE (B) (L), SIDE	

Ref. No.	Part No.	Description	Remark
* 28	3-704-198-21	SUPPORT, PC	
29	4-948-054-01	PLATE (B) (R), SIDE	
* 30	4-948-022-21	COVER (UPPER)	
* 31	4-949-235-01	HOOK	
32	4-928-025-51	ESCUTCHEON (TOP)	
* 33	4-947-627-21	PANEL, BACK (AEP)	
* 33	4-947-627-31	PANEL, BACK (Germany)	
* 33	4-947-627-51	PANEL, BACK (E:120V)	
* 33	4-947-627-61	PANEL, BACK (E:220-230V)	
* 34	3-309-144-21	HEAT SINK	
35	3-703-244-11	BUSHING (2104), CORD (AEP, Germany)	
35	3-703-571-00	BUSHING (S) (4516), CORD (E)	
⚠36	1-569-007-11	ADAPTER, CONVERSION 2P (E:220-230V)	
* 37	1-644-148-11	ANTENNA BOARD	
38	4-948-021-01	COVER (LOWER) (TA)	
* 39	A-4303-343-A	TCB001 (TUNER) BOARD, COMPLETE (AEP)	
* 39	A-4303-344-A	TCB001 (TUNER) BOARD, COMPLETE (Germany)	
* 39	A-4303-416-A	TCB001 (TUNER) BOARD, COMPLETE (E)	
40	4-949-520-22	LABEL (B) (T.L), FUSE RATING (E:120V)	
41	4-950-581-01	SPRING, GROUND	
* 42	4-942-204-01	PLATE, GROUND	
⚠CNJ701	1-540-041-11	OUTLET, AC (NONPOLAR) (2P) (E)	
⚠CNJ901	1-526-794-11	OUTLET, AC (AEP, Germany)	
⚠CNP901	1-575-651-11	CORD, POWER (AEP, Germany)	
⚠CNP901	1-575-653-11	CORD, POWER (E)	
⚠PT801	1-450-948-11	TRANSFORMER, POWER (AEP, E:220-230V, Germany)	
⚠PT801	1-450-949-11	TRANSFORMER, POWER (E:120V)	

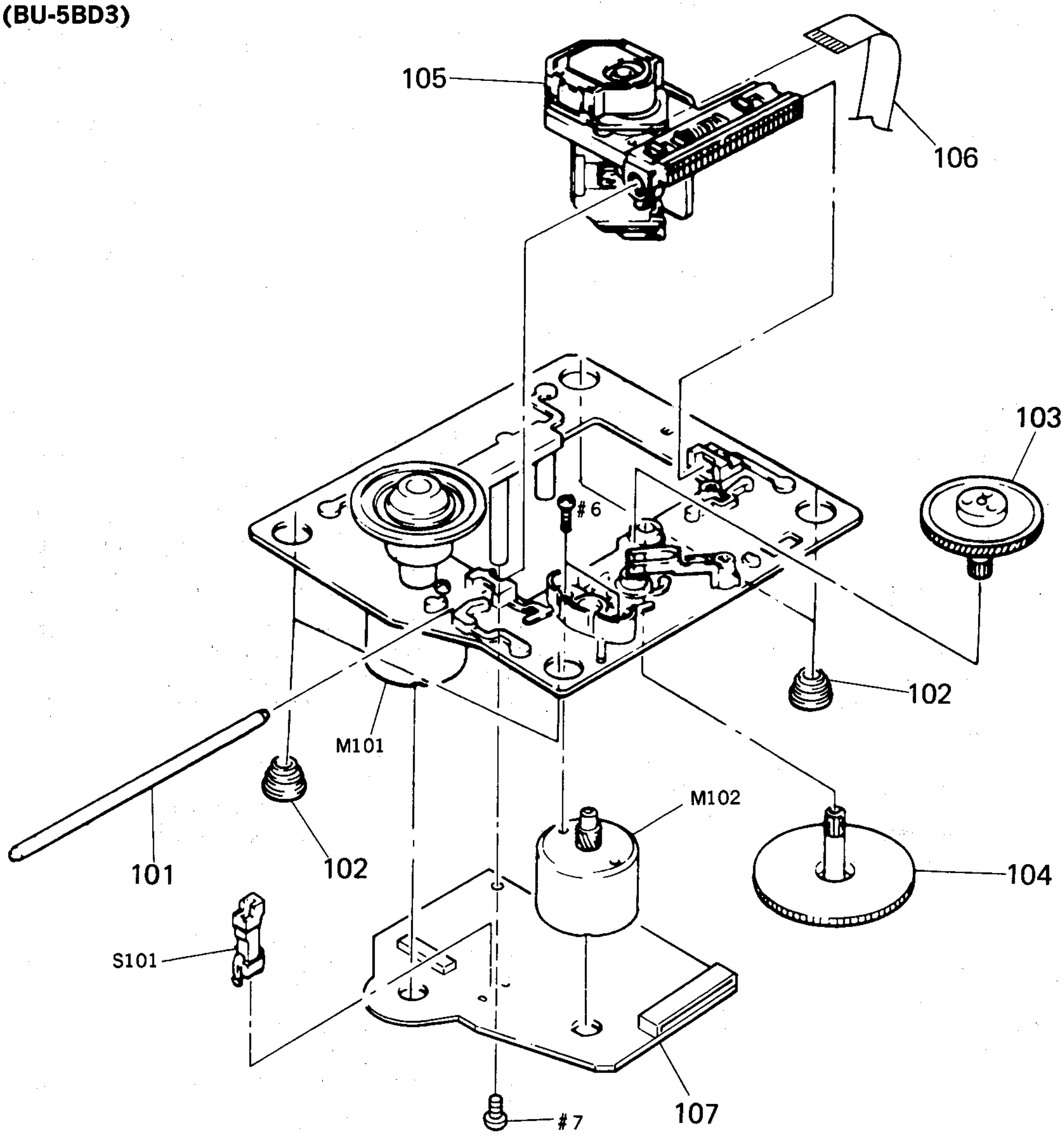
4-2. CD MECHANISM SECTION (CDM13B-5BD3)



Ref. No.	Part No.	Description	Remark
51	4-944-012-01	TABLE, DISC	
52	A-4604-752-A	HOLDER (MG) ASSY	
53	4-929-764-01	SHAFT (TABLE GUIDE)	
54	4-944-006-01	BEARING	
55	X-4941-462-1	CHASSIS (MD) ASSY	
56	4-927-649-01	BELT	
57	4-929-724-01	PULLEY (B)	
58	X-4929-703-1	ARM ASSY, SWING	
59	4-927-620-01	GEAR (P)	
60	4-927-628-01	GEAR (C)	
61	4-929-727-01	CAM (A)	
62	4-929-729-01	CAM (B)	

Ref. No.	Part No.	Description	Remark
63	3-659-338-00	SPRING, COMPRESSION	
64	4-927-654-01	WASHER (LIMITER)	
* 65	4-917-583-21	BRACKET, YOKE	
66	4-917-541-01	SPRING (B)	
67	4-929-747-01	HOLDER (BU)	
68	4-933-134-01	SCREW (+PTPWH M2.6X6)	
69	1-690-732-11	WIRE (FLAT TYPE) (22 CORE) (E:220-230V)	
69	1-690-941-11	WIRE (FLAT TYPE) (AEP, E:120V, Germany)	
* 70	1-634-461-11	LOADING BOARD	
M103	A-4608-362-A	MOTOR (L) ASSY	
S291	1-571-924-11	SWITCH, LEAF (LOAD OUT)	
S292	1-571-924-11	SWITCH, LEAF (LOAD IN)	

4-3. OPTICAL PICK-UP BLOCK SECTION (BU-5BD3)



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
101	4-917-565-01	SHAFT, SLED	
102	4-933-126-01	INSULATOR (A)	
103	4-917-567-01	GEAR (M) (AEP)	
104	4-917-564-01	GEAR (P), FLATNESS	
⚠105	8-848-144-11	DEVICE, OPTICAL KSS-240A	
106	1-575-001-11	WIRE, FLAT TYPE (12 CORE) (AEP)	
* 107	A-4617-371-A	BD BOARD, COMPLETE	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-644-148-11	ANTENNA BOARD			
		*************			
		< CONNECTOR >			
* CN901	1-564-506-11	PLUG, CONNECTOR 3P			
		< TERMINAL >			
* TM901	1-537-138-31	TERMINAL BOARD (ANT)(AEP,Germany)			
TM901	1-537-238-21	TERMINAL BOARD (E)			

****

Ref. No.	Part No.	Description			Remark
*	A-4617-371-A	BD BOARD, COMPLETE			
		*****************			
		< CAPACITOR >			
C101	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C102	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C103	1-126-163-11	ELECT	4.7uF	20%	50V
C104	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C105	1-126-154-11	ELECT	47uF	20%	6.3V
C106	1-126-154-11	ELECT	47uF	20%	6.3V
C107	1-126-154-11	ELECT	47uF	20%	6.3V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-131-367-00	TANTALUM	22uF	10%	20V
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C113	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C114	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C115	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C116	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C117	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C118	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C119	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C120	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V

Ref. No.	Part No.	Description			Remark
C151	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C153	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
C154	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C155	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C172	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C173	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C174	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-568-796-11	SOCKET, CONNECTOR 22P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-053-73	IC CXA1372AQ			
IC102	8-759-822-36	IC LA6532M			
		< JUMPER >			
J101	1-216-295-00	METAL CHIP	0	5%	1/10W
J102	1-216-295-00	METAL CHIP	0	5%	1/10W
		< TRANSISTOR >			
Q101	8-729-901-01	TRANSISTOR DTC144EK			
		< RESISTOR >			
R101	1-216-097-00	METAL CHIP	100K	5%	1/10W
R102	1-216-095-00	METAL CHIP	82K	5%	1/10W
R103	1-216-091-00	METAL CHIP	56K	5%	1/10W
R104	1-216-099-00	METAL CHIP	120K	5%	1/10W
R105	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R108	1-216-105-00	METAL CHIP	220K	5%	1/10W
R109	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R110	1-216-049-00	METAL CHIP	1K	5%	1/10W

BD **MAIN**

Ref. No.	Part No.	Description			Remark
R111	1-216-049-00	METAL CHIP	1K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R114	1-216-105-00	METAL CHIP	220K	5%	1/10W
R152	1-216-073-00	METAL CHIP	10K	5%	1/10W
R153	1-216-085-00	METAL CHIP	33K	5%	1/10W
R154	1-216-085-00	METAL CHIP	33K	5%	1/10W
R155	1-216-093-00	METAL CHIP	68K	5%	1/10W
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W
R157	1-216-079-00	METAL CHIP	18K	5%	1/10W
R158	1-216-079-00	METAL CHIP	18K	5%	1/10W
R159	1-216-079-00	METAL CHIP	18K	5%	1/10W
R160	1-216-049-00	METAL CHIP	1K	5%	1/10W
R171	1-216-001-00	METAL CHIP	10	5%	1/10W
R172	1-216-001-00	METAL CHIP	10	5%	1/10W
R173	1-216-001-00	METAL CHIP	10	5%	1/10W
R174	1-216-001-00	METAL CHIP	10	5%	1/10W

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV101	1-241-630-11	RES, ADJ, CARBON 10K (TRACKING GAIN)
RV102	1-241-630-11	RES, ADJ, CARBON 10K (FOCUS GAIN)

< SWITCH >

Ref. No.	Part No.	Description
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)

****

Ref. No.	Part No.	Description
*	A-4347-920-A	CD MAIN BOARD, COMPLETE (E)
*	A-4347-925-A	CD MAIN BOARD, COMPLETE (Germany)
*	A-4347-932-A	CD MAIN BOARD, COMPLETE (AEP)

****

Ref. No.	Part No.	Description
	4-870-539-00	PLATE, GROUND (AEP)
*	4-942-204-01	PLATE, GROUND

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C201	1-130-491-00	MYLAR	0.047uF	5%	50V
C202	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C204	1-161-494-00	CERAMIC	0.022uF		25V
C206	1-162-306-11	CERAMIC	0.01uF	20%	16V
C207	1-124-465-00	ELECT	0.47uF	20%	50V
C208	1-161-494-00	CERAMIC	0.022uF		25V
C209	1-124-589-11	ELECT	47uF	20%	16V
C210	1-164-159-11	CERAMIC	0.1uF		50V
C211	1-164-159-11	CERAMIC	0.1uF		50V
C212	1-162-208-31	CERAMIC	24PF	5%	50V
C213	1-162-205-31	CERAMIC	18PF	5%	50V
C214	1-164-159-11	CERAMIC	0.1uF		50V
C215	1-124-589-11	ELECT	47uF	20%	16V
C218	1-164-159-11	CERAMIC	0.1uF		50V
C219	1-124-589-11	ELECT	47uF	20%	16V
C220	1-164-159-11	CERAMIC	0.1uF		50V
C221	1-162-196-31	CERAMIC	5.6PF	10%	50V
C222	1-162-196-31	CERAMIC	5.6PF	10%	50V
C223	1-161-494-00	CERAMIC	0.022uF		25V
C224	1-124-589-11	ELECT	47uF	20%	16V
C225	1-161-494-00	CERAMIC	0.022uF		25V
C226	1-162-289-31	CERAMIC	390PF	10%	50V
C227	1-124-589-11	ELECT	47uF	20%	16V
C228	1-161-494-00	CERAMIC	0.022uF		25V
C229	1-162-289-31	CERAMIC	390PF	10%	50V
C230	1-124-589-11	ELECT	47uF	20%	16V
C231	1-161-494-00	CERAMIC	0.022uF		25V
C235	1-162-286-31	CERAMIC	220PF	10%	50V
C236	1-162-286-31	CERAMIC	220PF	10%	50V
C237	1-162-286-31	CERAMIC	220PF	10%	50V
C238	1-162-286-31	CERAMIC	220PF	10%	50V
C239	1-106-359-00	MYLAR	4700PF	5%	200V
C240	1-106-359-00	MYLAR	4700PF	5%	200V
C241	1-130-472-00	MYLAR	0.0012uF	5%	50V
C242	1-130-472-00	MYLAR	0.0012uF	5%	50V
C243	1-124-916-11	ELECT	22uF	20%	63V
C244	1-124-916-11	ELECT	22uF	20%	63V
C245	1-164-159-11	CERAMIC	0.1uF		50V
C246	1-164-159-11	CERAMIC	0.1uF		50V
C247	1-106-347-00	MYLAR	1500PF	5%	200V
C248	1-106-347-00	MYLAR	1500PF	5%	200V
C252	1-162-306-11	CERAMIC	0.01uF	20%	16V
C253	1-124-997-11	ELECT	470uF	20%	10V
C254	1-161-494-00	CERAMIC	0.022uF		25V
C255	1-126-059-11	ELECT	10uF	20%	50V
C256	1-126-023-11	ELECT	100uF	20%	16V
C260	1-126-022-11	ELECT	47uF	20%	16V
C261	1-126-022-11	ELECT	47uF	20%	16V
C263	1-162-306-11	CERAMIC	0.01uF	20%	16V
C301	1-162-306-11	CERAMIC	0.01uF	20%	16V
C302	1-126-059-11	ELECT	10uF	20%	50V
C304	1-162-306-11	CERAMIC	0.01uF	20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN201	1-568-822-11	SOCKET, CONNECTOR 22P
* CN202	1-564-339-00	PIN, CONNECTOR 5P
* CN203	1-564-509-11	PLUG, CONNECTOR 6P
* CN204	1-691-007-11	CONNECTOR (PC BOARD) (PLUG) 4P
* CN205	1-691-007-11	CONNECTOR (PC BOARD) (PLUG) 4P
* CN206	1-568-832-11	SOCKET, CONNECTOR 13P
* CN207	1-691-007-11	CONNECTOR (PC BOARD) (PLUG) 4P
* CN208	1-691-007-11	CONNECTOR (PC BOARD) (PLUG) 4P

MAIN

Ref.No.	Part No.	Description	Remark
* CN209	1-691-004-11	PLUG, CONNECTOR (PC BOARD) 13P	
* CN210	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
* CN211	1-564-506-11	PLUG, CONNECTOR 3P	
* CN301	1-568-832-11	SOCKET, CONNECTOR 13P	
* CN302	1-564-339-00	PIN, CONNECTOR 5P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D202	8-719-210-21	DIODE 11EQS04	
D203	8-719-010-26	DIODE UZ-3.9BSB	
D204	8-719-987-63	DIODE 1N4148M	
D205	8-719-000-78	DIODE UZL-7L2	
D301	8-719-987-63	DIODE 1N4148M	
D302	8-719-987-63	DIODE 1N4148M	

< IC >

Ref.No.	Part No.	Description	Remark
IC201	8-752-337-26	IC CXD2500AQ	
IC202	8-752-342-65	IC CXD2560M	
IC203	8-752-351-19	IC CXD2561BM	
IC204	8-759-634-51	IC M5218AP	
IC205	8-759-634-51	IC M5218AP	
IC206	8-759-633-65	IC M54641L	
IC207	8-759-634-51	IC M5218AP	
IC208	8-759-000-49	IC MC14066BCP	
IC209	8-749-923-04	IC TOTX178 (DIGITAL OUTPUT)	
IC301	8-759-061-80	IC uPD75116CW-210	

< COIL >

Ref.No.	Part No.	Description	Remark
L201	1-408-403-00	INDUCTOR 3.3uH	
L301	1-410-521-11	INDUCTOR 100uH	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q205	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q206	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q207	8-729-900-65	TRANSISTOR DTA144ES	
Q208	8-729-900-65	TRANSISTOR DTA144ES	
Q210	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q211	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q212	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q301	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R201	1-249-423-11	CARBON 3.3K 5% 1/4W	
R202	1-249-429-11	CARBON 10K 5% 1/4W	
R203	1-249-423-11	CARBON 3.3K 5% 1/4W	
R205	1-249-429-11	CARBON 10K 5% 1/4W	
R206	1-249-441-11	CARBON 100K 5% 1/4W	
R207	1-249-417-11	CARBON 1K 5% 1/4W	
R208	1-249-417-11	CARBON 1K 5% 1/4W	
R209	1-249-420-11	CARBON 1.8K 5% 1/4W	
R211	1-249-423-11	CARBON 3.3K 5% 1/4W	
R212	1-249-417-11	CARBON 1K 5% 1/4W	
R213	1-249-409-11	CARBON 220 5% 1/4W	
R214	1-249-409-11	CARBON 220 5% 1/4W	
R215	1-249-417-11	CARBON 1K 5% 1/4W	
R216	1-249-417-11	CARBON 1K 5% 1/4W	
R217	1-249-417-11	CARBON 1K 5% 1/4W	
R218	1-249-417-11	CARBON 1K 5% 1/4W	
R219	1-249-417-11	CARBON 1K 5% 1/4W	
R221	1-249-393-11	CARBON 10 5% 1/4W	
R222	1-247-903-00	CARBON 1M 5% 1/4W	(E, Germany)
R223	1-249-428-11	CARBON 8.2K 5% 1/4W	
R224	1-249-428-11	CARBON 8.2K 5% 1/4W	
R225	1-249-428-11	CARBON 8.2K 5% 1/4W	
R226	1-249-428-11	CARBON 8.2K 5% 1/4W	
R227	1-249-428-11	CARBON 8.2K 5% 1/4W	
R228	1-249-428-11	CARBON 8.2K 5% 1/4W	
R229	1-249-428-11	CARBON 8.2K 5% 1/4W	
R230	1-249-428-11	CARBON 8.2K 5% 1/4W	
R231	1-249-411-11	CARBON 330 5% 1/4W	
R233	1-249-423-11	CARBON 3.3K 5% 1/4W	
R234	1-249-423-11	CARBON 3.3K 5% 1/4W	
R235	1-249-423-11	CARBON 3.3K 5% 1/4W	
R236	1-249-423-11	CARBON 3.3K 5% 1/4W	
R237	1-249-429-11	CARBON 10K 5% 1/4W	
R238	1-249-429-11	CARBON 10K 5% 1/4W	
R239	1-249-429-11	CARBON 10K 5% 1/4W	
R240	1-249-429-11	CARBON 10K 5% 1/4W	
R241	1-249-419-11	CARBON 1.5K 5% 1/4W	
R242	1-249-419-11	CARBON 1.5K 5% 1/4W	
R243	1-249-419-11	CARBON 1.5K 5% 1/4W	
R244	1-249-419-11	CARBON 1.5K 5% 1/4W	
R245	1-247-887-00	CARBON 220K 5% 1/4W	
R246	1-247-887-00	CARBON 220K 5% 1/4W	
R247	1-249-413-11	CARBON 470 5% 1/4W	
R248	1-249-413-11	CARBON 470 5% 1/4W	
R254	1-249-393-11	CARBON 10 5% 1/4W	
R255	1-249-393-11	CARBON 10 5% 1/4W	
R256	1-249-413-11	CARBON 470 5% 1/4W	
R257	1-249-413-11	CARBON 470 5% 1/4W	
R258	1-249-425-11	CARBON 4.7K 5% 1/4W	
R259	1-249-425-11	CARBON 4.7K 5% 1/4W	
R261	1-249-441-11	CARBON 100K 5% 1/4W	
R262	1-249-441-11	CARBON 100K 5% 1/4W	
R271	1-249-413-11	CARBON 470 5% 1/4W	
R272	1-249-425-11	CARBON 4.7K 5% 1/4W	
R273	1-249-413-11	CARBON 470 5% 1/4W	
R274	1-249-425-11	CARBON 4.7K 5% 1/4W	
R275	1-249-410-11	CARBON 270 5% 1/4W	
R276	1-249-429-11	CARBON 10K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
R277	1-249-429-11	CARBON 10K 5% 1/4W	
R280	1-249-429-11	CARBON 10K 5% 1/4W	
R281	1-249-429-11	CARBON 10K 5% 1/4W	
R301	1-249-429-11	CARBON 10K 5% 1/4W	
R302	1-249-425-11	CARBON 4.7K 5% 1/4W	
R303	1-249-429-11	CARBON 10K 5% 1/4W	
R304	1-249-393-11	CARBON 10 5% 1/4W	
R307	1-249-437-11	CARBON 47K 5% 1/4W	
R308	1-249-429-11	CARBON 10K 5% 1/4W	
R309	1-249-429-11	CARBON 10K 5% 1/4W	
R310	1-249-429-11	CARBON 10K 5% 1/4W	
R311	1-249-429-11	CARBON 10K 5% 1/4W	
R312	1-249-429-11	CARBON 10K 5% 1/4W	
		< VIBRATOR >	
X201	1-567-965-11	VIBRATOR, CRYSTAL (22.5792MHz)	
X301	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	
***			
*	1-644-144-11	DISPLAY BOARD *************	
		< CAPACITOR >	
C501	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C502	1-164-812-11	CERAMIC 68PF 5% 50V	
C503	1-161-379-00	CERAMIC 0.01uF 20% 25V	
		< CONNECTOR >	
* CN501	1-568-852-11	SOCKET, CONNECTOR 9P	
		< INDICATOR TUBE >	
FL501	1-519-700-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC501	8-759-045-48	IC M66004MIFP	
		< RESISTOR >	
R501	1-249-432-11	CARBON 18K 5% 1/4W	
***			
*	1-634-461-11	LOADING BOARD *************	
		< CONNECTOR >	
* CN291	1-564-498-11	PIN, CONNECTOR 5P	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S291	1-571-924-11	SWITCH, LEAF (LOAD OUT)	
S292	1-571-924-11	SWITCH, LEAF (LOAD IN)	
***			
*	1-644-146-11	PANEL (L) BOARD ***************	
		< CONNECTOR >	
* CN602	1-568-850-11	SOCKET, CONNECTOR 7P	
		< SWITCH >	
S603	1-554-303-21	SWITCH, TACTILE (TIMER SET 1)	
S604	1-554-303-21	SWITCH, TACTILE (TIMER SET 2)	
S605	1-554-303-21	SWITCH, TACTILE (TIMER SET 3(REC))	
S606	1-554-303-21	SWITCH, TACTILE (CLOCK)	
S607	1-554-303-21	SWITCH, TACTILE (CONTROL/CHECK/CLEAR)	
S608	1-554-303-21	SWITCH, TACTILE (TIME/DAY -)	
S609	1-554-303-21	SWITCH, TACTILE (TIME/DAY +)	
S610	1-554-303-21	SWITCH, TACTILE (NEXT)	
S611	1-554-303-21	SWITCH, TACTILE (SLEEP)	
***			
*	1-641-516-13	PANEL (R) BOARD ***************	
		< CONNECTOR >	
CN603	1-564-501-11	PIN, CONNECTOR 8P	
* CN604	1-564-498-11	PIN, CONNECTOR 5P	
		< DIODE >	
D601	8-719-301-49	LED SEL2810A (▶II)	
D602	8-719-301-37	LED SEL2210S-CD (CONTINUE)	
D603	8-719-301-37	LED SEL2210S-CD (SHUFLE)	
D604	8-719-301-37	LED SEL2210S-CD (PROGRAM)	
		< RESISTOR >	
R601	1-249-409-11	CARBON 220 5% 1/4W	
R602	1-249-412-11	CARBON 390 5% 1/4W	
R603	1-249-412-11	CARBON 390 5% 1/4W	
R604	1-249-412-11	CARBON 390 5% 1/4W	
		< SWITCH >	
S612	1-554-303-21	SWITCH, TACTILE (▶II)	
S613	1-554-303-21	SWITCH, TACTILE (TUNING/PRESET)	
S614	1-554-303-21	SWITCH, TACTILE (⏪ ⏮ /-)	
S615	1-554-303-21	SWITCH, TACTILE (⏩ ⏭ /+)	

PANEL (R) POWER ST CONTROL

Ref. No.	Part No.	Description	Remark
S616	1-554-303-21	SWITCH, TACTILE (TIME SHIFT)	
S617	1-554-303-21	SWITCH, TACTILE (CHECK/MEMORY)	
S618	1-554-303-21	SWITCH, TACTILE (CLEAR/CHARACTER)	
S619	1-554-303-21	SWITCH, TACTILE (STEREO/MONO ENTER)	
S620	1-554-303-21	SWITCH, TACTILE (⏏)	
S621	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S622	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S623	1-554-303-21	SWITCH, TACTILE (PROGRAM)	

****

Ref. No.	Part No.	Description	Remark
*	1-644-145-11	POWER BOARD ***********	
*	3-309-144-21	HEAT SINK	
		< CAPACITOR >	
C801	1-126-017-11	ELECT 6800uF 20% 16V	
C802	1-126-024-11	ELECT 220uF 20% 16V	
C803	1-126-024-11	ELECT 220uF 20% 16V	
C804	1-126-027-11	ELECT 1000uF 20% 25V	
C805	1-126-024-11	ELECT 220uF 20% 16V	
		< CONNECTOR >	
* CN801	1-564-321-00	PIN, CONNECTOR 2P	
* CN802	1-564-508-11	PLUG, CONNECTOR 5P	
* CN803	1-564-509-11	PLUG, CONNECTOR 6P	
		< DIODE >	
D801	8-719-200-77	DIODE 10E2N	
D802	8-719-200-77	DIODE 10E2N	
D803	8-719-200-77	DIODE 10E2N	
D804	8-719-200-77	DIODE 10E2N	
		< IC >	
IC801	8-759-231-53	IC TA7805S	
IC802	8-759-605-00	IC M5F78M07L	
IC803	8-759-982-52	IC RC79M05FA	

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Ref. No.	Part No.	Description	Remark
*	A-4347-918-A	ST CONTROL BOARD, COMPLETE (E)	
*	A-4347-921-A	ST CONTROL BOARD, COMPLETE (Germany)	
*	A-4347-926-A	ST CONTROL BOARD, COMPLETE (AEP) ***********************************	
*	4-933-656-01	PLATE (ANT), GROUND	
*	4-948-457-01	HOLDER (CD), FL	

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C401	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C402	1-162-206-31	CERAMIC 20PF 5% 50V	
C403	1-102-961-00	CERAMIC 27PF 5% 50V	
C404	1-164-159-11	CERAMIC 0.1uF 50V	
C405	1-126-162-11	ELECT 3.3uF 20% 50V	
C406	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C407	1-125-486-11	DOUBLE LAYERS 0.22F 5.5V	
C408	1-126-059-11	ELECT 10uF 20% 50V	
C409	1-164-159-11	CERAMIC 0.1uF 50V	
C410	1-161-375-00	CERAMIC 0.0022uF 20% 50V	
C701	1-161-744-00	CERAMIC 0.01uF 400V	
C703	1-164-096-11	CERAMIC 0.01uF 50V	
C704	1-126-041-11	ELECT 2200uF 20% 35V	
C705	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C706	1-126-022-11	ELECT 47uF 20% 16V	
C707	1-126-022-11	ELECT 47uF 20% 16V	
C708	1-126-301-11	ELECT 1uF 20% 50V	
C710	1-126-161-11	ELECT 2.2uF 20% 50V	
C715	1-124-918-11	ELECT 47uF 20% 63V	
C716	1-124-918-11	ELECT 47uF 20% 63V	
C717	1-124-910-11	ELECT 47uF 20% 50V	
C718	1-126-059-11	ELECT 10uF 20% 50V	
		< CONNECTOR >	
* CN401	1-568-824-11	SOCKET, CONNECTOR 5P	
* CN402	1-568-826-11	SOCKET, CONNECTOR 7P	
* CN403	1-564-342-11	PIN, CONNECTOR 8P	
* CN404	1-568-828-11	SOCKET, CONNECTOR 9P	
* CN405	1-568-832-11	SOCKET, CONNECTOR 13P	
* CN406	1-568-832-11	SOCKET, CONNECTOR 13P	
* CN701	1-564-321-00	PIN, CONNECTOR 2P	
* CN703	1-564-508-11	PLUG, CONNECTOR 5P	
		< DIODE >	
D401	8-719-987-63	DIODE 1N4148M	
D402	8-719-987-63	DIODE 1N4148M	
D403	8-719-987-63	DIODE 1N4148M	
D404	8-719-987-63	DIODE 1N4148M	
D405	8-719-987-63	DIODE 1N4148M	
D406	8-719-987-63	DIODE 1N4148M	
D407	8-719-987-63	DIODE 1N4148M	
D408	8-719-987-63	DIODE 1N4148M	
D409	8-719-987-63	DIODE 1N4148M	
D411	8-719-987-63	DIODE 1N4148M (E)	
D413	8-719-987-63	DIODE 1N4148M	
D701	8-719-987-63	DIODE 1N4148M	

Ref. No.	Part No.	Description	Remark
D702	8-719-200-77	DIODE 10E2N	
D706	8-719-200-77	DIODE 10E2N	
D707	8-719-200-77	DIODE 10E2N	
D708	8-719-014-66	DIODE UZP-5.6B	

< FUSE >

Ref. No.	Part No.	Description	Remark
⚠F701	1-532-237-00	FUSE, TIME-LAG (BET) (3.15A) (AEP, E:220-230V, Germany)	
⚠F701	1-532-325-00	FUSE, TIME-LAG (6.3A) (E:120V)	

< HOLDER >

Ref. No.	Part No.	Description	Remark
* FH701	1-533-213-31	HOLDER, FUSE	
* FH702	1-533-213-31	HOLDER, FUSE	

< IC >

Ref. No.	Part No.	Description	Remark
IC401	8-759-073-73	IC uPD75217CW-150	
IC701	8-759-820-09	IC LA5667	
IC703	8-759-633-42	IC M5293L	

< COIL >

Ref. No.	Part No.	Description	Remark
L401	1-410-521-11	INDUCTOR 100uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q401	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q402	8-729-900-80	TRANSISTOR DTC114ES	
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q702	8-729-140-04	TRANSISTOR 2SB1116A-L	
Q703	8-729-620-05	TRANSISTOR 2SC2603-EF	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R401	1-249-429-11	CARBON 10K 5% 1/4W	
R402	1-249-429-11	CARBON 10K 5% 1/4W	
R403	1-249-433-11	CARBON 22K 5% 1/4W	
R404	1-249-433-11	CARBON 22K 5% 1/4W	
R405	1-249-429-11	CARBON 10K 5% 1/4W	
R406	1-249-429-11	CARBON 10K 5% 1/4W	
R407	1-249-429-11	CARBON 10K 5% 1/4W	
R408	1-249-429-11	CARBON 10K 5% 1/4W	
R409	1-249-429-11	CARBON 10K 5% 1/4W	
R410	1-249-433-11	CARBON 22K 5% 1/4W	
R411	1-249-433-11	CARBON 22K 5% 1/4W	
R412	1-249-429-11	CARBON 10K 5% 1/4W	
R413	1-249-429-11	CARBON 10K 5% 1/4W	
R414	1-249-429-11	CARBON 10K 5% 1/4W	
R415	1-249-429-11	CARBON 10K 5% 1/4W	
R416	1-247-903-00	CARBON 1M 5% 1/4W	
R417	1-247-903-00	CARBON 1M 5% 1/4W	
R418	1-249-429-11	CARBON 10K 5% 1/4W	
R419	1-249-405-11	CARBON 100 5% 1/4W	
R421	1-249-393-11	CARBON 10 5% 1/4W	
R422	1-249-421-11	CARBON 2.2K 5% 1/4W	
R423	1-249-429-11	CARBON 10K 5% 1/4W	
R424	1-249-425-11	CARBON 4.7K 5% 1/4W	
R425	1-249-429-11	CARBON 10K 5% 1/4W	
R426	1-249-413-11	CARBON 470 5% 1/4W	
R427	1-249-413-11	CARBON 470 5% 1/4W	
R428	1-249-413-11	CARBON 470 5% 1/4W	
R429	1-249-413-11	CARBON 470 5% 1/4W	
R430	1-249-429-11	CARBON 10K 5% 1/4W	
R701	1-247-743-11	CARBON 220 5% 1/2W	
R702	1-249-429-11	CARBON 10K 5% 1/4W	
R704	1-249-417-11	CARBON 1K 5% 1/4W	
R705	1-249-433-11	CARBON 22K 5% 1/4W	
R706	1-249-413-11	CARBON 470 5% 1/4W	
R707	1-249-425-11	CARBON 4.7K 5% 1/4W	
R710	1-249-437-11	CARBON 47K 5% 1/4W	
R711	1-249-429-11	CARBON 10K 5% 1/4W	
R712	1-249-433-11	CARBON 22K 5% 1/4W	

< RELAY >

Ref. No.	Part No.	Description	Remark
RY701	1-515-720-11	RELAY	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X401	1-577-621-11	VIBRATOR, CRYSTAL (4.19MHz)	

****

* 1-644-147-11 SYSTEM POWER BOARD
****

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN601	1-568-848-11	SOCKET, CONNECTOR 5P	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S601	1-554-303-21	SWITCH, TACTILE (SYSTEM POWER)	
S602	1-554-303-21	SWITCH, TACTILE (BAND)	

****

* A-4303-343-A TCB001 (TUNER) BOARD, COMPLETE (AEP)
* A-4303-344-A TCB001 (TUNER) BOARD, COMPLETE (Germany)
* A-4303-416-A TCB001 (TUNER) BOARD, COMPLETE (E)
****

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C1	1-124-120-11	ELECT 220uF 20% 25V	
C2	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C3	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C5	1-163-031-11	CERAMIC CHIP 0.01uF 50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

TCB001

Ref. No.	Part No.	Description	Remark
C6	1-163-038-00	CERAMIC CHIP 0.1uF 25V	(AEP, Germany)
C8	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(AEP, Germany)
C9	1-163-012-00	CERAMIC CHIP 1800PF	(AEP, Germany)
C10	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	(AEP, Germany)
C21	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
C22	1-163-237-11	CERAMIC CHIP 27PF 5% 50V	
C23	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C24	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C25	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C26	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C27	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C29	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C31	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C32	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C33	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C34	1-164-005-11	CERAMIC CHIP 0.47uF 25V	(AEP, Germany)
C35	1-163-033-00	CERAMIC CHIP 0.022uF 50V	(AEP, Germany)
C36	1-163-033-00	CERAMIC CHIP 0.022uF 50V	(AEP, Germany)
C51	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C52	1-126-162-11	ELECT 3.3uF 20% 50V	
C53	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C54	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C55	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	(AEP, E)
C55	1-163-135-00	CERAMIC CHIP 560PF 5% 50V	(Germany)
C56	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	(Germany)
C57	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C58	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C59	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C60	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C61	1-163-022-00	CERAMIC CHIP 0.012uF 10% 50V	
C62	1-163-022-00	CERAMIC CHIP 0.012uF 10% 50V	
C63	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C64	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C65	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C66	1-164-346-11	CERAMIC CHIP 1.0uF 16V	
C69	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C70	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C71	1-163-031-11	CERAMIC CHIP 0.01uF 50V	

Ref. No.	Part No.	Description	Remark
C72	1-124-120-11	ELECT 220uF 20% 25V	
C73	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C74	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C75	1-126-157-11	ELECT 10uF 20% 16V	
C76	1-126-101-11	ELECT 100uF 20% 16V	
C79	1-126-157-11	ELECT 10uF 20% 16V	
C80	1-124-472-11	ELECT 470uF 20% 10V	
C81	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C82	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C83	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(Germany)

< FILTER >

Ref. No.	Part No.	Description	Remark
CF1	1-567-389-11	FILTER, CERAMIC	(E)
CF1	1-579-675-11	FILTER, CERAMIC	(AEP, Germany)
CF2	1-579-675-11	FILTER, CERAMIC	(Germany)
CF51	1-567-389-11	FILTER, CERAMIC	(E)
CF51	1-579-675-11	FILTER, CERAMIC	(AEP, Germany)

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN1	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN2	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN3	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN4	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	
CN5	1-573-105-11	CONNECTOR, PC BOARD (RECEPTACLE)	

< DIODE >

Ref. No.	Part No.	Description	Remark
D21	8-719-422-46	DIODE MA8056-TX	
D51	8-719-016-74	DIODE 1SS352	

< FRONTEND >

Ref. No.	Part No.	Description	Remark
FE1	1-463-957-11	FRONTEND (FM 4 GANG)	(Germany)
FE1	1-465-673-11	FRONTEND (2 BAND)	(AEP, E)
FE2	1-239-030-11	ENCAPSULATED COMPONENT (MW)	(AEP, Germany)
FE2	1-239-031-11	ENCAPSULATED COMPONENT	(E)
FE3	1-239-049-11	ENCAPSULATED COMPONENT (LW)	(AEP, Germany)

< FILTER >

Ref. No.	Part No.	Description	Remark
FL51	1-239-029-11	ENCAPSULATED COMPONENT	(Germany)

< IC >

Ref. No.	Part No.	Description	Remark
IC21	8-759-821-43	IC LC7218M	
IC51	8-759-823-68	IC LA1851NM	

TCB001

Ref. No.	Part No.	Description	Remark
		< IFT >	
IFT51	1-404-954-11	TRANSFORMER, DISCRIMINATOR	
IFT52	1-404-713-11	TRANSFORMER, IF	
		< JUMPER RESISTOR >	
JW1	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW2	1-216-295-00	METAL CHIP 0 5% 1/10W	(AEP, E)
JW4	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW5	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW6	1-216-295-00	METAL CHIP 0 5% 1/10W	(E)
JW7	1-216-295-00	METAL CHIP 0 5% 1/10W	(AEP, Germany)
		< COIL >	
L1	1-408-793-21	INDUCTOR CHIP 220uH	(AEP, Germany)
L51	1-408-798-00	CHIP INDUCTOR	
		< FILTER >	
LPF51	1-235-221-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-804-72	TRANSISTOR 2SC2814-F4	
Q2	8-729-804-72	TRANSISTOR 2SC2814-F4	(Germany)
Q3	8-729-810-16	TRANSISTOR 2SA1678	
Q4	8-729-602-36	TRANSISTOR 2SA1602	(AEP, Germany)
Q5	8-729-810-28	TRANSISTOR 2SC4398	(AEP, Germany)
Q6	8-729-602-36	TRANSISTOR 2SA1602	(AEP, Germany)
Q7	8-729-810-28	TRANSISTOR 2SC4398	(AEP, Germany)
Q21	8-729-602-21	TRANSISTOR 2SC4154	
Q22	8-729-232-69	TRANSISTOR 2SK208GR3	
Q23	8-729-232-59	TRANSISTOR 2SC4666B	
Q24	8-729-232-69	TRANSISTOR 2SK208GR3	(AEP, Germany)
Q25	8-729-232-59	TRANSISTOR 2SC4666B	(AEP, Germany)
Q51	8-729-602-21	TRANSISTOR 2SC4154	
Q52	8-729-602-21	TRANSISTOR 2SC4154	
Q53	8-729-810-28	TRANSISTOR 2SC4398	
		< RESISTOR >	
R1	1-216-037-00	METAL CHIP 330 5% 1/10W	
R2	1-216-037-00	METAL CHIP 330 5% 1/10W	
R3	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R4	1-216-037-00	METAL CHIP 330 5% 1/10W	
R5	1-216-109-00	METAL CHIP 330K 5% 1/10W	(Germany)
R6	1-216-037-00	METAL CHIP 330 5% 1/10W	(Germany)
R7	1-216-025-00	METAL CHIP 100 5% 1/10W	
R8	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(AEP, Germany)
R9	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R10	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R11	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	(AEP, Germany)
R12	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(AEP, Germany)
R13	1-216-089-00	METAL CHIP 47K 5% 1/10W	(AEP, Germany)
R14	1-216-081-00	METAL CHIP 22K 5% 1/10W	(AEP, Germany)
R15	1-216-121-00	METAL CHIP 1M 5% 1/10W	(AEP, Germany)
R16	1-216-089-00	METAL CHIP 47K 5% 1/10W	(AEP, Germany)
R21	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R22	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R23	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R24	1-216-025-00	METAL CHIP 100 5% 1/10W	
R25	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R26	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R27	1-216-073-00	METAL CHIP 10K 5% 1/10W	(AEP, Germany)
R28	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R29	1-216-025-00	METAL CHIP 100 5% 1/10W	
R30	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R31	1-216-043-00	METAL CHIP 560 5% 1/10W	
R32	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R33	1-216-035-00	METAL CHIP 270 5% 1/10W	
R34	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R35	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R36	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R37	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R38	1-216-025-00	METAL CHIP 100 5% 1/10W	
R39	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	(AEP, Germany)
R40	1-216-043-00	METAL CHIP 560 5% 1/10W	(AEP, E)
R41	1-216-049-00	METAL CHIP 1K 5% 1/10W	(AEP, Germany)
R42	1-216-035-00	METAL CHIP 270 5% 1/10W	(AEP, Germany)
R43	1-216-081-00	METAL CHIP 22K 5% 1/10W	(AEP, Germany)
R44	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(AEP, Germany)
R45	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	(AEP, Germany)

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Ref. No.	Part No.	Description	Remark
R46	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	(AEP, Germany)
R47	1-216-025-00	METAL CHIP 100 5% 1/10W	
R51	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R52	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R53	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R54	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R55	1-216-075-00	METAL CHIP 12K 5% 1/10W	(AEP, Germany)
R56	1-216-075-00	METAL CHIP 12K 5% 1/10W	(Germany)
R57	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R58	1-216-066-00	METAL CHIP 5.1K 5% 1/10W	
R59	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R60	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R61	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R62	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R63	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R64	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R65	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R66	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R67	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R68	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R69	1-216-025-00	METAL CHIP 100 5% 1/10W	
R70	1-216-025-00	METAL CHIP 100 5% 1/10W	
R71	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R72	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R73	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R74	1-216-013-00	METAL CHIP 33 5% 1/10W	
R75	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	(Germany)
R79	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	(Germany)
R79	1-216-049-00	METAL CHIP 1K 5% 1/10W	(AEP, E)
		< VARIABLE RESISTOR >	
RV51	1-238-601-11	RES, ADJ, CARBON 22K (MW TUNED LEVEL)	
RV52	1-238-601-11	RES, ADJ, CARBON 22K (FM TUNED LEVEL)	
		< TEST PIN >	
* TP51	1-564-336-00	PIN, CONNECTOR 2P	
		< VIBRATOR >	
X21	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)	
X51	1-577-075-11	OSCILLATOR, CERAMIC (19KHz)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
15	1-575-730-31	WIRE, FLAT TYPE (5 CORE)	
16	1-590-032-31	WIRE, FLAT TYPE (7 CORE)	
17	1-690-588-31	WIRE, FLAT TYPE (9 CORE)	
21	1-690-590-31	WIRE, FLAT TYPE (13 CORE)	
22	1-690-589-31	WIRE, FLAT TYPE (13 CORE)	
⚠36	1-569-007-11	ADAPTER, CONVERSION 2P	(E:220-230V)
69	1-690-732-11	WIRE (FLAT TYPE) (22 CORE)	(E:220-230V)
69	1-690-941-11	WIRE (FLAT TYPE)	(AEP, E:120V, Germany)
⚠105	8-848-144-11	DEVICE, OPTICAL KSS-240A	
106	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	(AEP)
⚠CNJ701	1-540-041-11	OUTLET, AC (NONPOLAR) (2P)	(E)
⚠CNJ901	1-526-794-11	OUTLET, AC	(AEP, Germany)
⚠CNP901	1-575-651-11	CORD, POWER	(AEP, Germany)
⚠CNP901	1-575-653-11	CORD, POWER	(E)
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M103	A-4608-362-A	MOTOR (L) ASSY	
⚠PT801	1-450-948-11	TRANSFORMER, POWER	(AEP, E:220-230V, Germany)
⚠PT801	1-450-949-11	TRANSFORMER, POWER	(E:120V)

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-501-369-11	ANTENNA	(AEP)
	1-501-374-11	ANTENNA, LOOP	(AEP, Germany)
*	4-948-202-01	CUSHION	
*	4-952-536-01	INDIVIDUAL CARTON	(AEP, Germany)

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

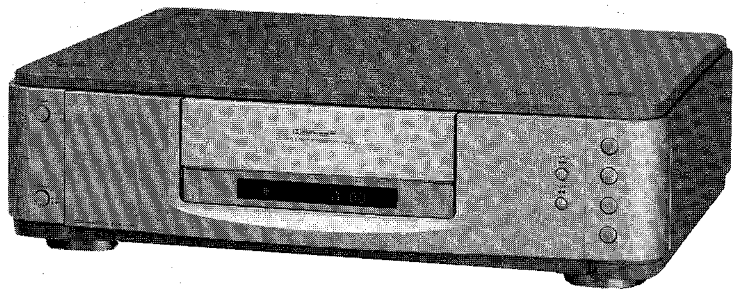
****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-682-551-09	SCREW +BVTT 3X14 (S)	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#4	7-621-775-10	SCREW +B 2.6X4	
#5	7-624-105-04	STOP RING 2.3, TYPE -E	
#6	7-621-255-15	SCREW +P 2X3	
#7	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S (AEP)	
#8	7-685-234-19	SCREW +KTP 2.6X8 TYPE2NON-SLIT	
#9	7-682-549-04	SCREW (M3X10), S TITE, + BTT	
#10	7-685-870-01	SCREW +BVTT 3X5 (S)	

TC-VF1

SERVICE MANUAL

AEP Model
E Model



This set is the cassette deck section in LBT-VF3.

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	TCM-200R31 : E Model TCM-200R32 : AEP Model

SPECIFICATIONS

Cassette deck (TC-VF1)

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF With Type IV cassette (Sony METAL-ES) 30 Hz to 17 kHz (±3 dB) With Type II cassette (Sony UX-S) 30 Hz to 16 kHz (±3 dB) With Type I cassette (Sony HF-S) 30 Hz to 15 kHz (±3 dB)
Wow and Flutter	±0.06% (WRMS)
Power requirements	220-230 V AC, 50/60 Hz (South-east Asian, AEP, German) 120 V AC, 50/60 Hz (Latin American model)
Power consumption	17 W
Weight	Approx. 5.3 kg
Dimensions	Approx. 355 × 98.5 × 296 mm (w/h/d, including projections)

Design and specifications are subject to change without notice.

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

COMPACT STEREO SYSTEM

SONY®

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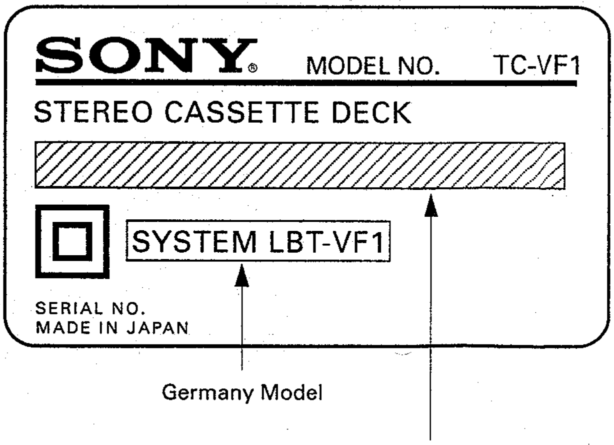
MODEL IDENTIFICATION

– SPECIFICATION LABEL –



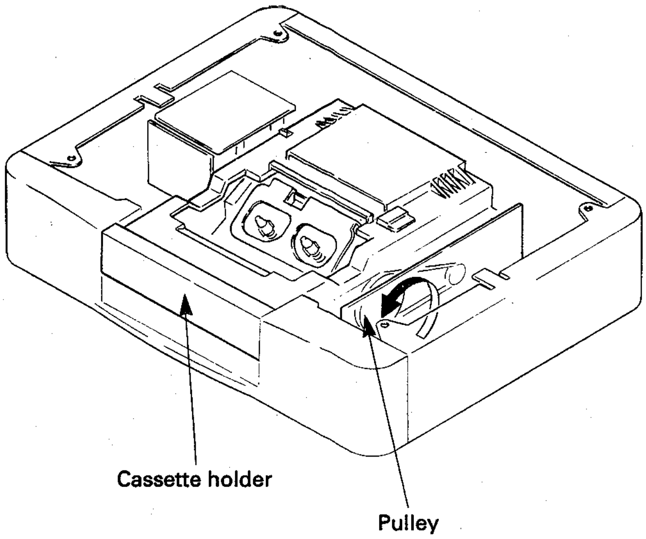
AEP, Germany Model	:	AC 220 - 230V, 50/60Hz
E ; 120V Model	:	AC120V ~ 50/60Hz 17W
E ; 220 - 230V Model	:	AC220 - 230V ~ 50/60Hz 17W

SECTION 1

SERVICING NOTE

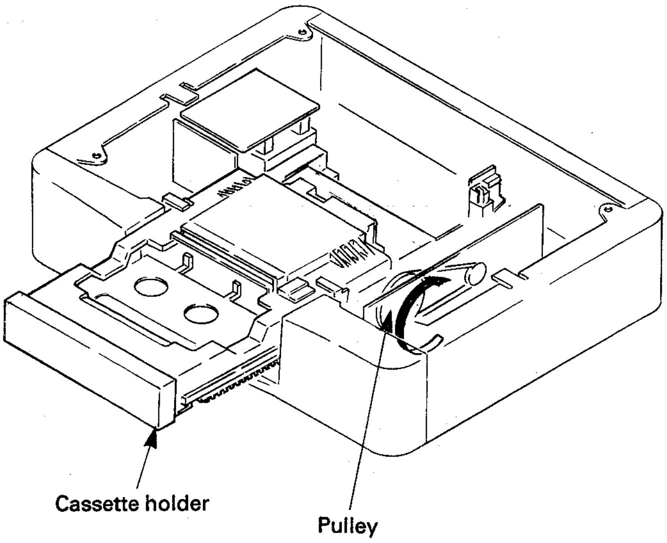
1-1. EJECTING DISABLED (MOTOR DISABLED)

Rotate the pulley in the direction of the arrow (counterclockwise), thus the cassette holder is ejected.


Cassette holder
Pulley

1-2. CASSETTE HOLDER NOT RETURNED (MOTOR DISABLED)

Rotate the pulley in the direction of the arrow (clockwise), thus the cassette holder is housed.


Cassette holder
Pulley

SECTION 2
GENERAL

This section is extracted from instruction manual.

Playing Back Tapes

You can use tapes of type I, II and IV for playback. The tape type is determined automatically.

Playing Back a Tape

1 **Press the ≜ button.**

2 **Insert a recorded tape and press the ≜ button again.**

3 **Set the DOLBY NR selector to the same system as was used when recording.**

4 **Set the DIRECTION MODE selector to the desired position.**
- To play both sides in succession, set to ⊂⊃. (The deck stops automatically after repeating the sequence 5 times.)
- To play both sides once, set to ⊃.
- To play only one side, set to ⇄.

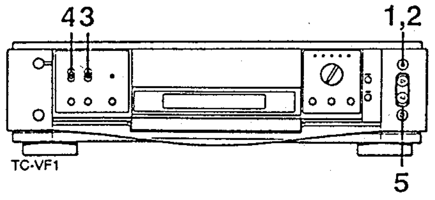
5 **Press the ► (or ◄) button.**
►: The front side is played back.
◄: The reverse side is played back.

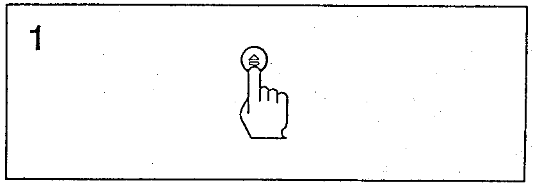
To stop during playback, press the ■ button.
To fast wind to the right or to the left, press the ►► or ◄◄ button.
To pause, press the PAUSE button. To resume, press the PAUSE button again or press the ► (or ◄) button.

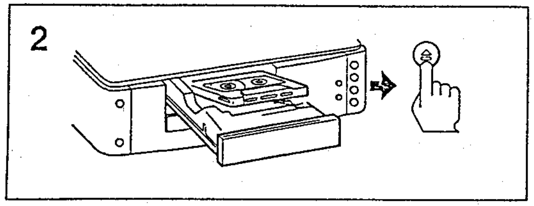
Starting Play Automatically after Rewinding – Auto Play

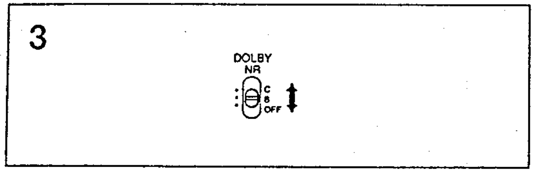
To rewind to the beginning of the front side and start playing
Press both the ◄◄ and ► buttons simultaneously.

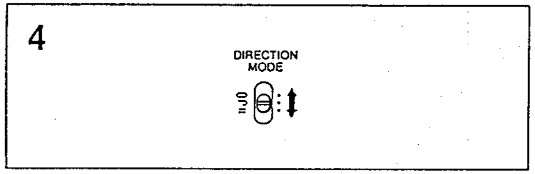
To rewind to the beginning of the reverse side and start playing
Press both the ►► and ◄ buttons simultaneously.

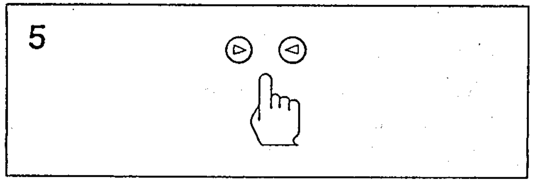












Location of Controls

Cassette Deck (TC-VF1)

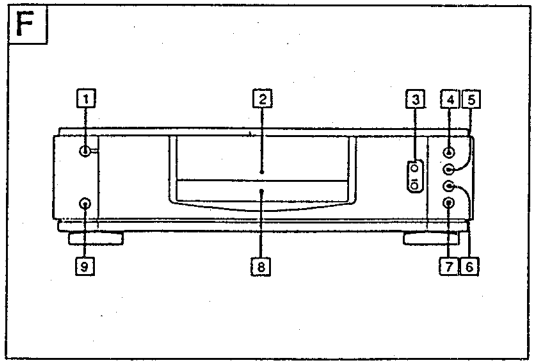
With the door closed (Fig. F)

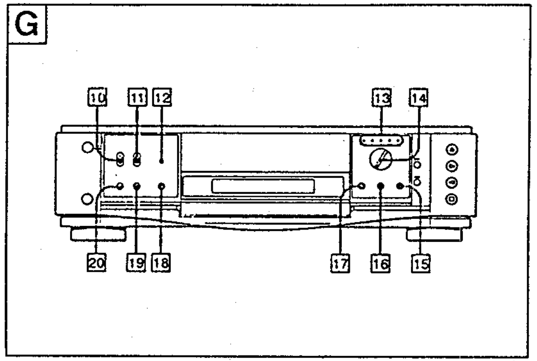
1 OPEN button
2 Cassette tray
3 ◄◄ (leftward fast winding/AMS*) and ►► (rightward fast winding/AMS*) buttons (32, 34)
4 ≜ (Eject) button (32)
5 ► (Forward play) button (32, 36, 42, 46, 48)
6 ◄ (Reverse play) button (32, 36, 42, 46, 48)
7 ■ (Stop) button (32, 36, 42)
8 Display
9 POWER button (18)

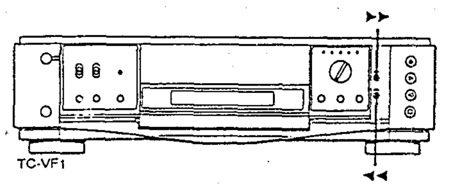
With the door opened (Fig. G)

10 DIRECTION MODE selector (32, 40, 50)
11 DOLBY NR selector (32, 40, 50)
12 ARL button (46)
13 Peak level meter (46)
14 REC LEVEL control (42, 46, 52)
15 REC button (40)
16 MUTE button (48)
17 PAUSE button (32, 48)
18 CD SYNCHRO button (50)
19 COUNTER MEMORY button (36)
20 COUNTER RESET button (36)

* AMS is the abbreviation of Automatic Music Sensor.







Playing Back Tapes

Locating the Beginning of a Selection – Automatic Music Sensor (AMS)

During playback, check the direction indicator and press the ▶▶ or ◀◀ button referring to the following table.

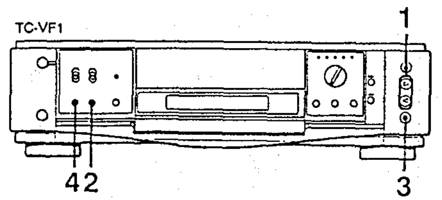
Indicator	Desired selection	
	Next selection	Selection being played
▷	▶▶	◀◀
◁	◀◀	▶▶

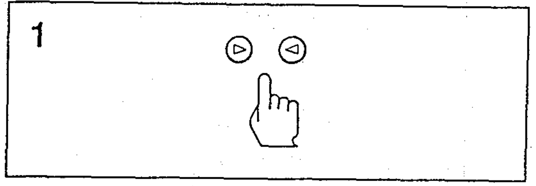
"PLAY" indication changes to "AMS" while the AMS searches for the beginning of the selection. After locating the beginning of the selection, playback starts automatically.

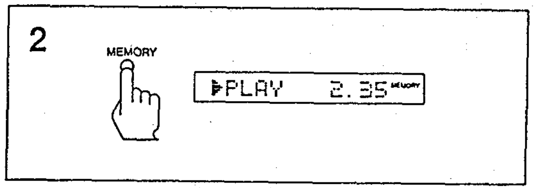
What is the AMS?
The AMS detects the blank space between selections and locates the beginning of a selection during playback. To ensure correct operation of the AMS, there must be a blank space of four seconds or longer between selections.

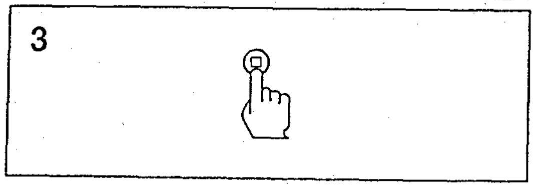
The AMS may not operate
- If there is noise in the space between selections.
- If the space is less than four seconds long.

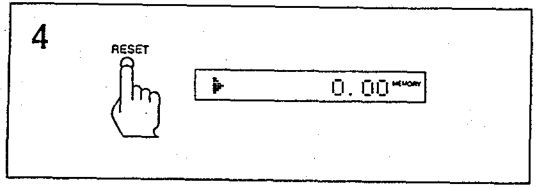
The AMS will treat the following as blanks:
- a long pause in music
- a passage of low frequencies or very low volume
- a gradual increase or decrease in volume











Playing Back Tapes

Locating a Desired Position Using the Counter – Memory Play/Memory Stop

1 **Press the ▶ (or ◀) button.**
▶: The front side is played back.
◀: The reverse side is played back.

2 **Press the MEMORY button.**
"MEMORY" appears.

3 **Press the ■ button at the desired point.**

4 **Press the RESET button.**
The counter is reset to 0.00, and you can return to this point later during playback.

To return to the desired position

Direction Indicator	Button to be pressed
▷	◀◀
◁	▶▶

The tape is rewound to around 0.00 and stops.

When you use the auto play function
The tape is rewound to around 0.00 and playback starts automatically. (See page 32.)

To cancel memory play
Press the MEMORY button so that "MEMORY" disappears.

(to be continued)

SECTION 3

ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record / playback head	pinch roller
erase head	rubber belts
capstan	idler

2. Demagnetize the record / playback head with a head demagnetizer
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed in the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	28 to 60g•cm (0.39 to 0.84 oz•inch)
FWD Back tension	CQ-102C	1 to 5g•cm (0.014 to 0.07 oz•inch)
REV	CQ-102RC	28 to 60g•cm (0.39 to 0.84 oz•inch)
REV Back tension	CQ-102RC	1 to 5g•cm (0.014 to 0.07 oz•inch)
FF, REW	CQ-201B	65 to 90g•cm (0.91 to 1.26 oz•inch)

3-2. ELECTRICAL ADJUSTMENT

Note : The adjustment should be performed in the order given in the service manual. As a rule, adjustment about playback should be performed before adjustment about recording. The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.

  DOLBY NR switch : OFF
  DIRECTION MODE switch : ⇄

- Setting of test mode

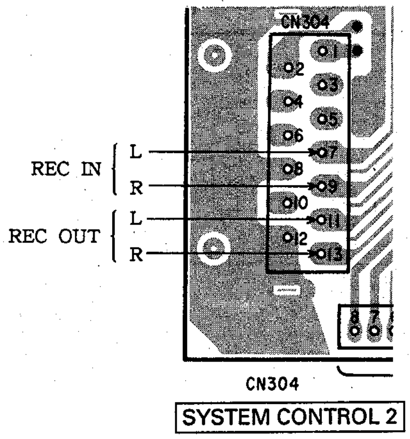
1. Test mode with TP701 (2P EH) of the system control board shorted.
2. After adjustment of disconnect the TP701.

Test tape

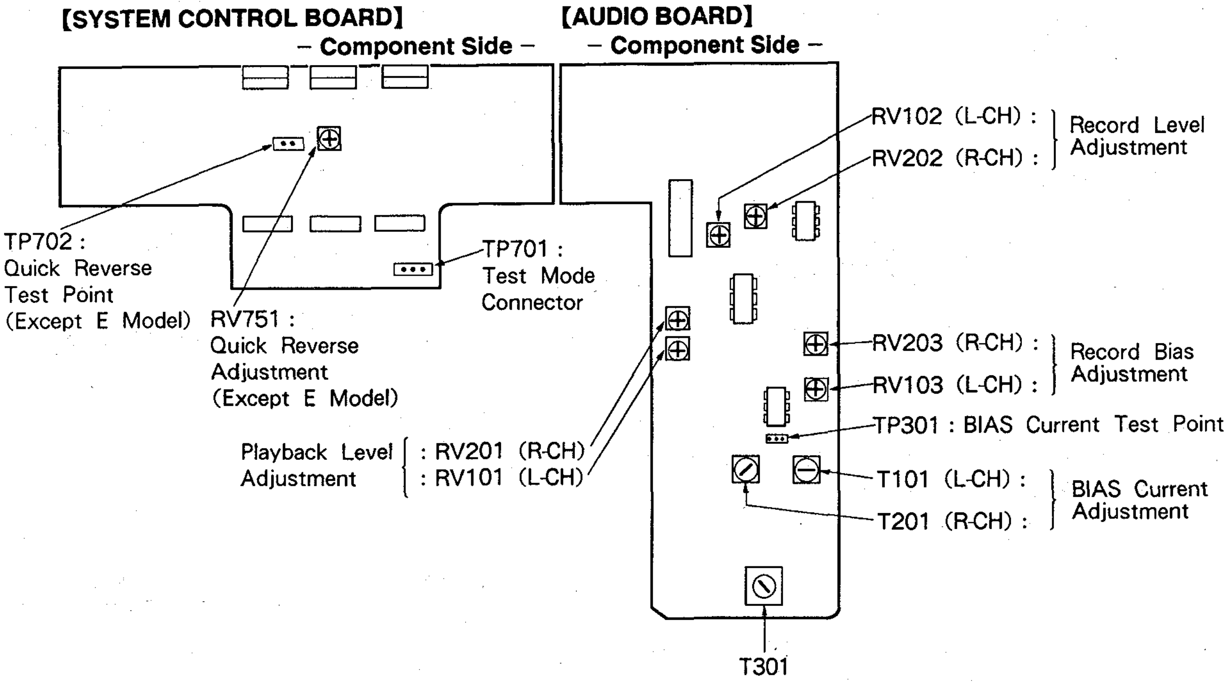
Type	Signal	Used for
P-4-A100	10kHz, –10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

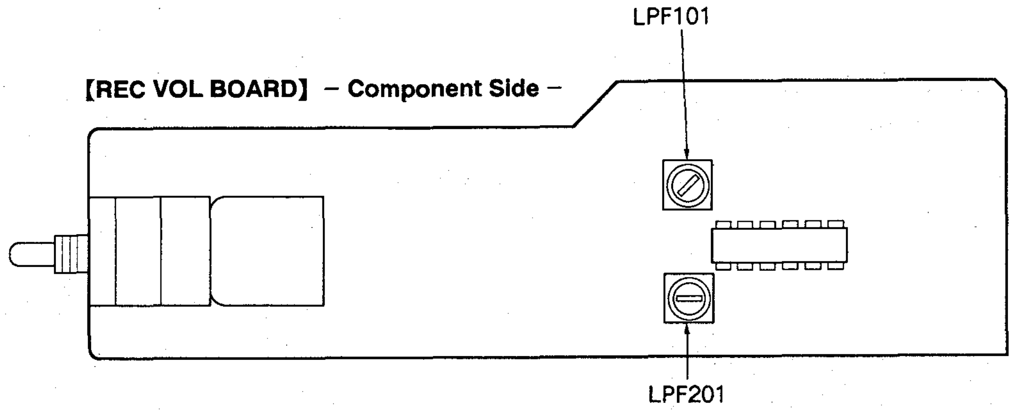
LINE IN/OUT TERMINAL (CN304)

[AUDIO BOARD]



Adjustment location :

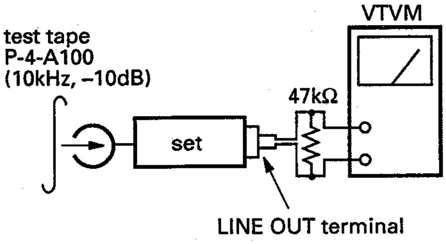

[SYSTEM CONTROL BOARD]
– Component Side –
[AUDIO BOARD]
– Component Side –
TP702 :
Quick Reverse
Test Point
(Except E Model)
RV751 :
Quick Reverse
Adjustment
(Except E Model)
TP701 :
Test Mode
Connector
Playback Level Adjustment
: RV201 (R-CH)
: RV101 (L-CH)
RV102 (L-CH) :
RV202 (R-CH) :
Record Level Adjustment
RV203 (R-CH) :
RV103 (L-CH) :
Record Bias Adjustment
TP301 : BIAS Current Test Point
T101 (L-CH) :
T201 (R-CH) :
BIAS Current Adjustment
T301


LPF101
[REC VOL BOARD] – Component Side –
LPF201

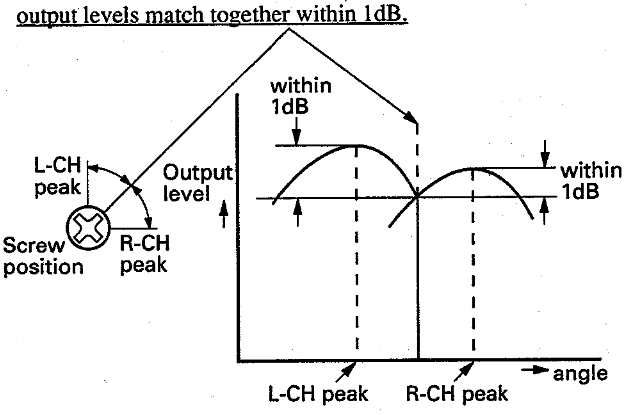
Record / Playback Head Azimuth Adjustment

Procedure :

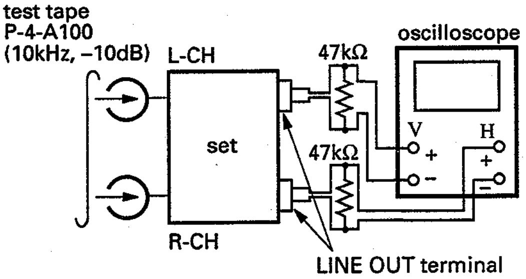
1. Mode : FWD Playback

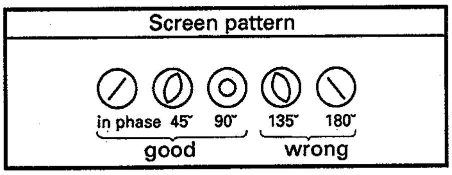

test tape
P-4-A100
(10kHz, −10dB)
set
47kΩ
VTVM
LINE OUT terminal

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



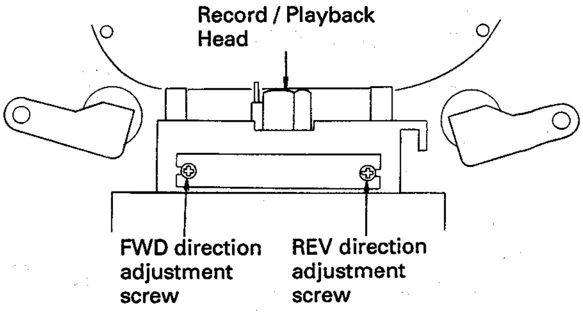
3. Phase Check
   Mode : FWD playback


test tape
P-4-A100
(10kHz, −10dB)
L-CH
R-CH
set
47kΩ
47kΩ
oscilloscope
V
H
+
−
+
−
LINE OUT terminal


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. Set in the REV mode and repeat the step 1-3.
5. After the adjustment, lock the screws with locking compound.

Adjustment Location : Record / Playback head

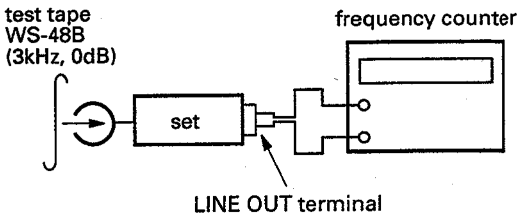

Record / Playback
Head
FWD direction
adjustment
screw
REV direction
adjustment
screw

(However, the recording/playback head in the figure above depicts REV state.)

Tape Speed Adjustment

Procedure :

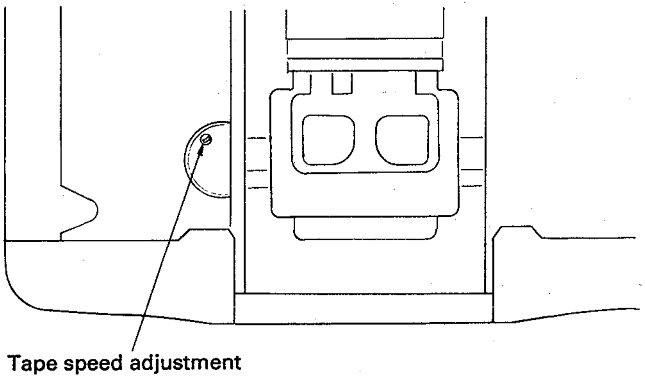
1. Mode : FWD Playback


test tape
WS-48B
(3kHz, 0dB)
set
frequency counter
LINE OUT terminal

2. Adjust the semi-fixed switch in the motor so that the reading of the frequency counter agrees with an adjustment value.

Specification : 3000Hz±15Hz

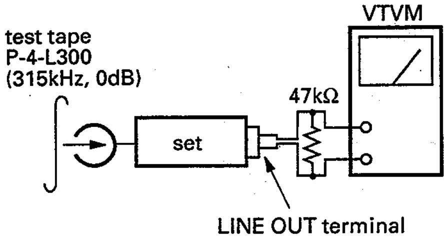
Adjustment Location : Capstan Motor


Tape speed adjustment

Playback Level Adjustment

Procedure :

Mode : FWD playback


test tape
P-4-L300
(315kHz, 0dB)
VTVM
47kΩ
set
LINE OUT terminal

Adjust RV101 (L-CH), RV201 (R-CH) so that the reading on VTVM meets the adjustment specification below.

Specification :

Output level : –16dB±0.5dB (125mV)

Level difference between channels : less than 0.5dB

Adjustment Location : AUDIO board

Record Adjustment

BIAS Current Adjustment

Setting :

REC VR : minimun

LINE IN : no signal

Adjustment tape : CS-413

Procedure :

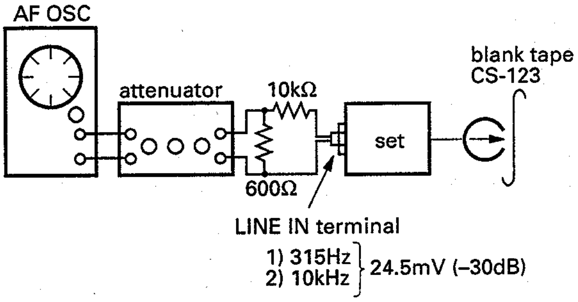
Mode : record

1. Traveling state for recording
2. Connect the VTVM to the TP301 (between 1 and 2 and between 3 and 2) and adjust the T101/T201 for a minimum current consumption.

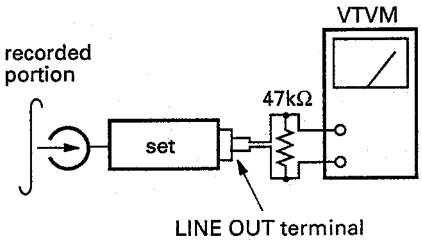
Record Bias Adjustment

Procedure :

1. Mode : record


AF OSC
attenuator
10kΩ
600Ω
set
blank tape
CS-123
LINE IN terminal
1) 315Hz
2) 10kHz
24.5mV (–30dB)

2. Mode : FWD playback


recorded
portion
VTVM
47kΩ
set
LINE OUT terminal

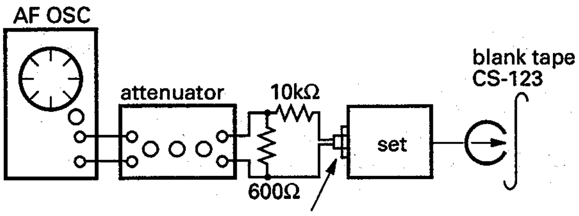
3. Playback the signal recorded in step 1.
   Confirm that the 10kHz playback output is 0±0.5dB (0.732-0.821V) relative to the 315Hz output. If necessary, adjust RV103 (L-CH), RV203 (R-CH) and repeat the steps given above.

Adjustment Location : AUDIO board

Record Level Adjustment

Procedure :

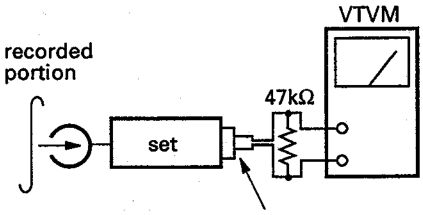
1. Mode : record



LINE IN terminal

315Hz, –30dB(24.5mV)

2. Mode : FWD playback



LINE OUT terminal

3. Playback the signal recorded in step 1.
   Confirm that the signal level is within the specification below. If necessary, adjust RV102 (L-CH), RV202 (R-CH) and repeat the steps given above.

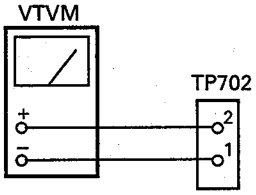
Specification : –30dB±0.5dB (23–26mV)

Adjustment Location : AUDIO board

Quick Reverse Adjustment

Setting :

Direction mode : ⇄



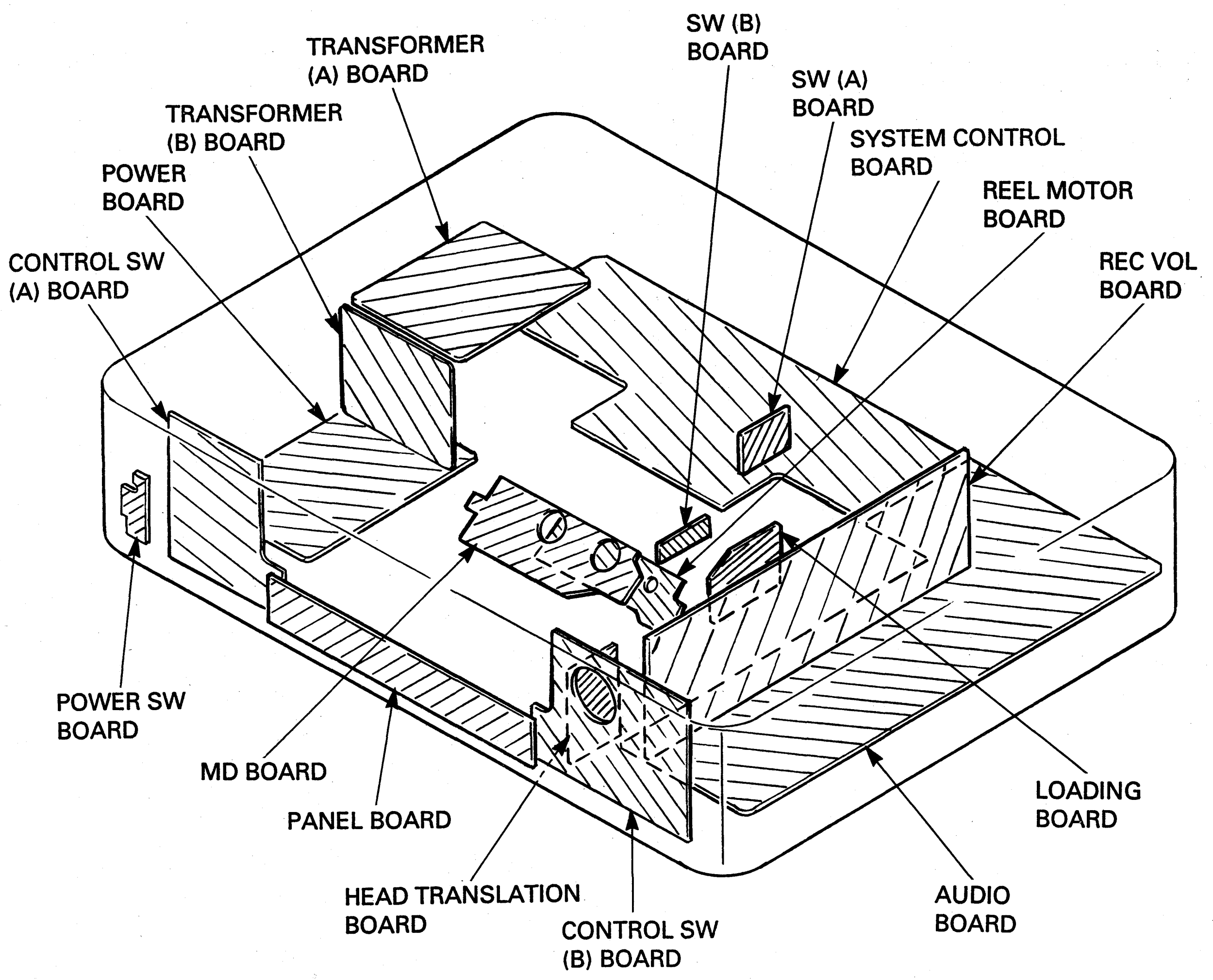
Procedure :

1. Put a tape cassette in the set and put the set into the FWD state.
2. Adjust RV751 so that the reading on VTVM is approximately 0.5V below the maximum voltage value. (Example : 5.5V-0.5V)
3. After the adjustment, put the SONY tape (HFC-120) in the set and playback.
   Confirm that the tape travel stops near the tape-end.
   (The voltage difference between the leader tape and the magnetic material part is above 2V.

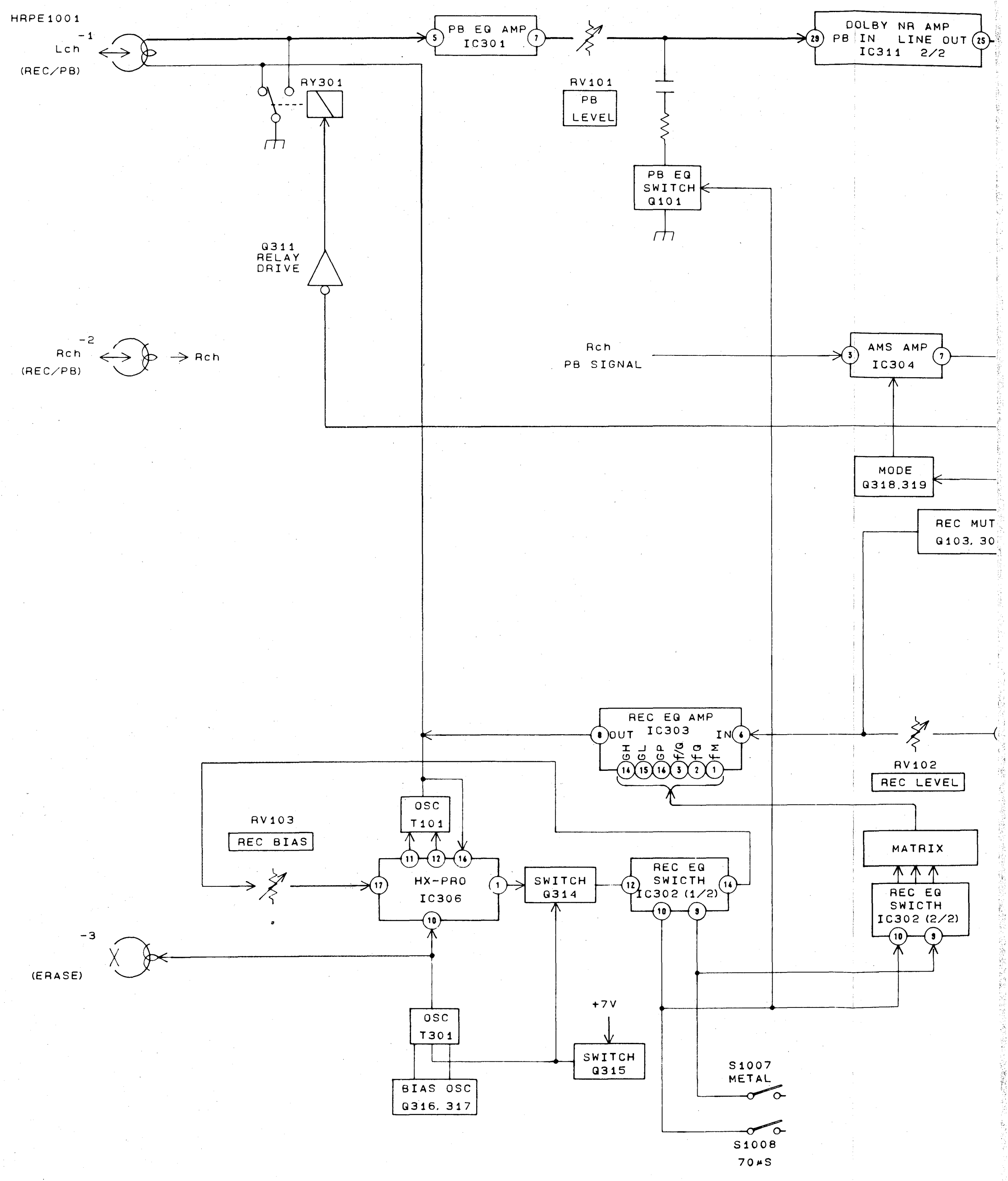
Adjustment Location : SYSTEM CONTROL board

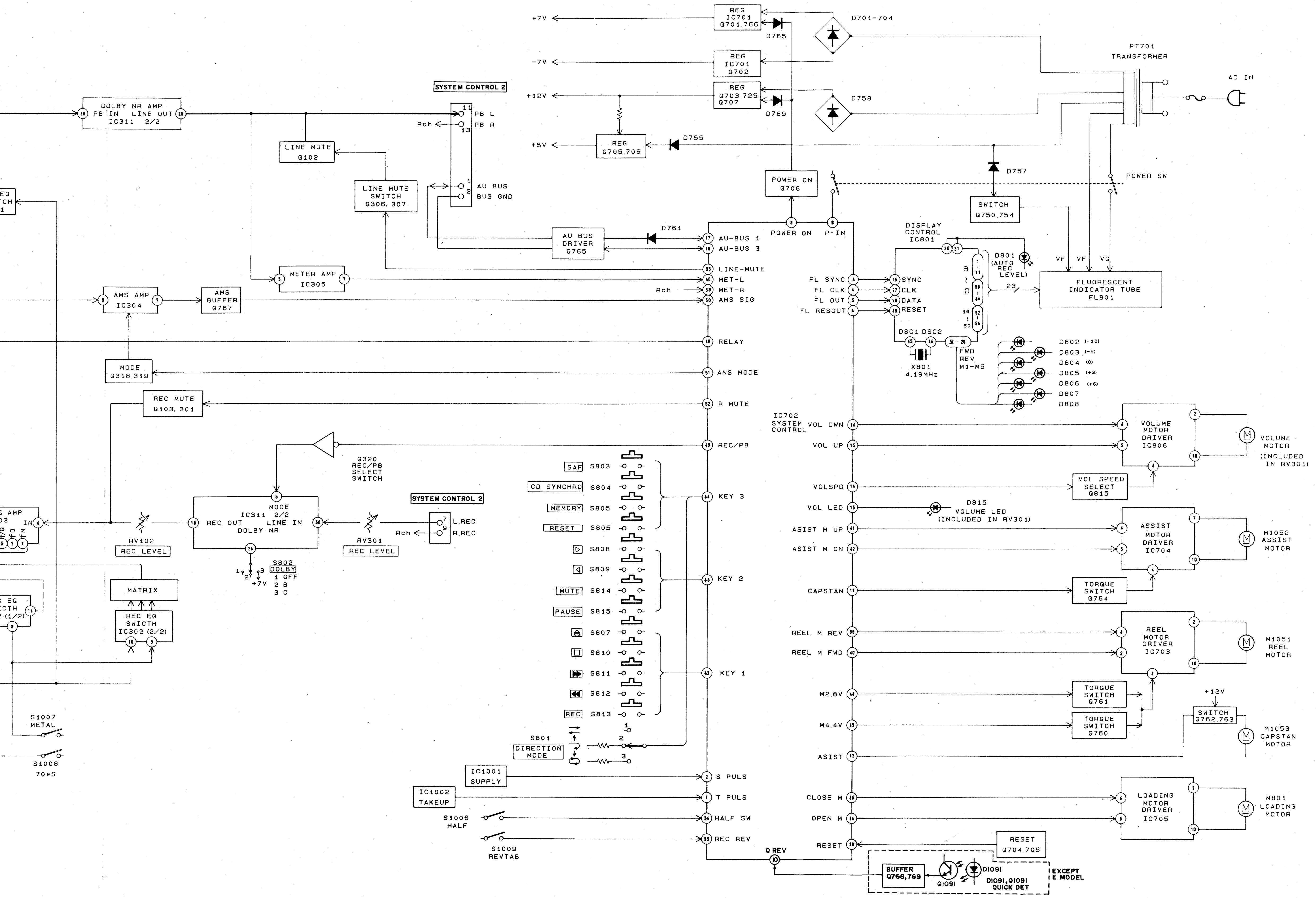
SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION


TRANSFORMER (A) BOARD
SW (B) BOARD
SW (A) BOARD
TRANSFORMER (B) BOARD
SYSTEM CONTROL BOARD
POWER BOARD
REEL MOTOR BOARD
CONTROL SW (A) BOARD
REC VOL BOARD
POWER SW BOARD
MD BOARD
PANEL BOARD
LOADING BOARD
HEAD TRANSLATION BOARD
CONTROL SW (B) BOARD
AUDIO BOARD

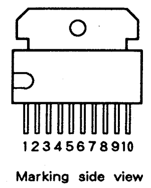
4-2. BLOCK DIAGRAM


HRPE1001
-1
Lch
(REC/PB)
RY301
PB EQ AMP
IC301
RV101
PB
LEVEL
DOLBY NR AMP
PB IN
LINE OUT
IC311 2/2
PB EQ
SWITCH
Q101
Q311
RELAY
DRIVE
-2
Rch
(REC/PB)
Rch
Rch
PB SIGNAL
AMS AMP
IC304
MODE
Q318,319
REC MUT
Q103, 30
REC EQ AMP
IC303
OUT
IN
GH
GL
GP
f/Q
fQ
fM
RV102
REC LEVEL
RV103
REC BIAS
OSC
T101
HX-PRO
IC306
SWITCH
Q314
REC EQ
SWICTH
IC302 (1/2)
MATRIX
REC EQ
SWICTH
IC302 (2/2)
-3
(ERASE)
OSC
T301
+7V
SWITCH
Q315
BIAS OSC
Q316, 317
S1007
METAL
S1008
70μS

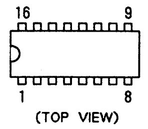

+7V
-7V
+12V
+5V
REG IC701 Q701,766
REG IC701 Q702
REG Q703,725 Q707
REG Q705,706
D765
D769
D755
D701-704
D758
D757
PT701 TRANSFORMER
AC IN
POWER SW
POWER ON Q706
SWITCH Q750,754
VF
VF
VG
FLUORESCENT INDICATOR TUBE FL801
23
DISPLAY CONTROL IC801
D801 (AUTO REC LEVEL)
a ~ p
1 ~ 11
58 ~ 64
52 ~ 54
1G ~ 5G
SYNC
CLK
DATA
RESET
DSC1 DSC2
X801 4.19MHz
FWD REV M1-M5
D802 (-10)
D803 (-5)
D804 (0)
D805 (+3)
D806 (+6)
D807
D808
DOLBY NR AMP PB IN LINE OUT IC311 2/2
SYSTEM CONTROL 2
PB L
PB R
Rch
AU BUS
BUS GND
LINE MUTE Q102
LINE MUTE SWITCH Q306, 307
AU BUS DRIVER Q765
D761
METER AMP IC305
AMS AMP IC304
AMS BUFFER Q767
MODE Q318,319
REC MUTE Q103, 301
Q320 REC/PB SELECT SWITCH
EQ
TCH
AMP
03
IN
MODE
IC311 2/2
REC OUT LINE IN
DOLBY NR
RV102 REC LEVEL
RV301 REC LEVEL
SYSTEM CONTROL 2
L.REC
R.REC
Rch
S802 DOLBY
1 OFF
2 B
3 C
+7V
MATRIX
REC EQ SWITCH IC302 (2/2)
EQ
CTH
(1/2)
S1007 METAL
S1008 70µS
SAF S803
CD SYNCHRO S804
MEMORY S805
RESET S806
S808
S809
MUTE S814
PAUSE S815
S807
S810
S811
S812
REC S813
S801 DIRECTION MODE
IC1001 SUPPLY
IC1002 TAKEUP
S1006 HALF
S1009 REVTAB
POWER ON
P-IN
AU-BUS 1
AU-BUS 3
LINE-MUTE
MET-L
MET-R
Rch
AMS SIG
RELAY
ANS MODE
R MUTE
REC/PB
KEY 3
KEY 2
KEY 1
S PULS
T PULS
HALF SW
REC REV
Q REV
IC702 SYSTEM CONTROL
FL SYNC
FL CLK
FL OUT
FL RESOUT
VOL DWN
VOL UP
VOLSPD
VOL LED
D815 VOLUME LED (INCLUDED IN RV301)
ASIST M UP
ASIST M ON
CAPSTAN
REEL M REV
REEL M FWD
M2.8V
M4.4V
ASIST
CLOSE M
OPEN M
RESET
RESET Q704,705
BUFFER Q768,769
Q1091
D1091
D1091,Q1091 QUICK DET
EXCEPT E MODEL
VOLUME MOTOR DRIVER IC806
VOLUME MOTOR (INCLUDED IN RV301)
VOL SPEED SELECT Q815
ASSIST MOTOR DRIVER IC704
M1052 ASSIST MOTOR
TORQUE SWITCH Q764
REEL MOTOR DRIVER IC703
M1051 REEL MOTOR
TORQUE SWITCH Q761
TORQUE SWITCH Q760
+12V
SWITCH Q762,763
M1053 CAPSTAN MOTOR
LOADING MOTOR DRIVER IC705
M801 LOADING MOTOR
M
M
M
M
M

4-3. SEMICONDUCTOR LEAD LAYOUTS

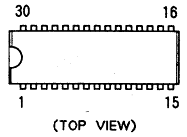
BA6219B
LB1641


1 2 3 4 5 6 7 8 9 10
Marking side view

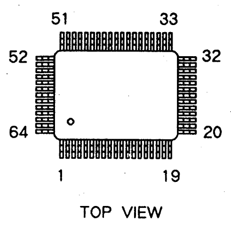
CXA1198AP
MC14052BCP


16
9
1
8
(TOP VIEW)

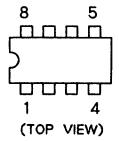
CXA1331S


30
16
1
15
(TOP VIEW)

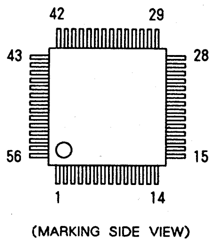
HD614023FB31


51
33
52
32
64
20
1
19
TOP VIEW

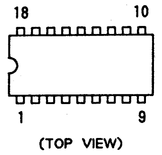
M5218AP
RC4558P
µPC4570C-1


8
5
1
4
(TOP VIEW)

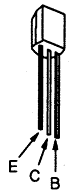
M50944-126FP
M50944-130FP


42
29
43
28
56
15
1
14
(MARKING SIDE VIEW)

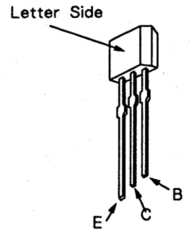
µPC1297CA


18
10
1
9
(TOP VIEW)

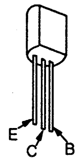
DTA114ES
DTA144ES
DTC114ES
DTC143TS
DTC144ES
2SC2603-EF
2SD1012-FG



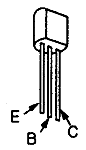
2SA1175-HFE


Letter Side
E
C
B

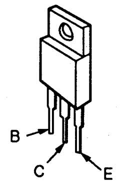
2SB1013-4
2SC945-P



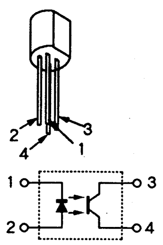
2SB1116-K



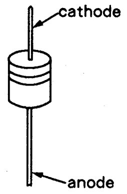
2SB1094-LK
2SD2012



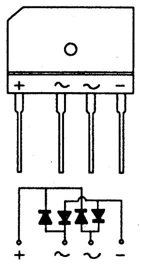
GP2S22B



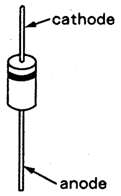
HZS6A1L
UZL-6L3
UZL-7H1
UZL-11H2
1N4148M


cathode
anode

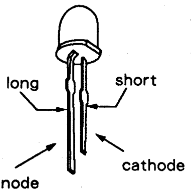
RBA-402



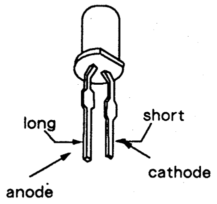
10E2N


cathode
anode

SEL2210S-D
SEL2810A


long
short
anode
cathode

SEL2210S-CD


long
short
cathode
anode

4-4. PRINTED WIRING BOARDS
(DISPLAY/POWER SUPPLY SECTION)

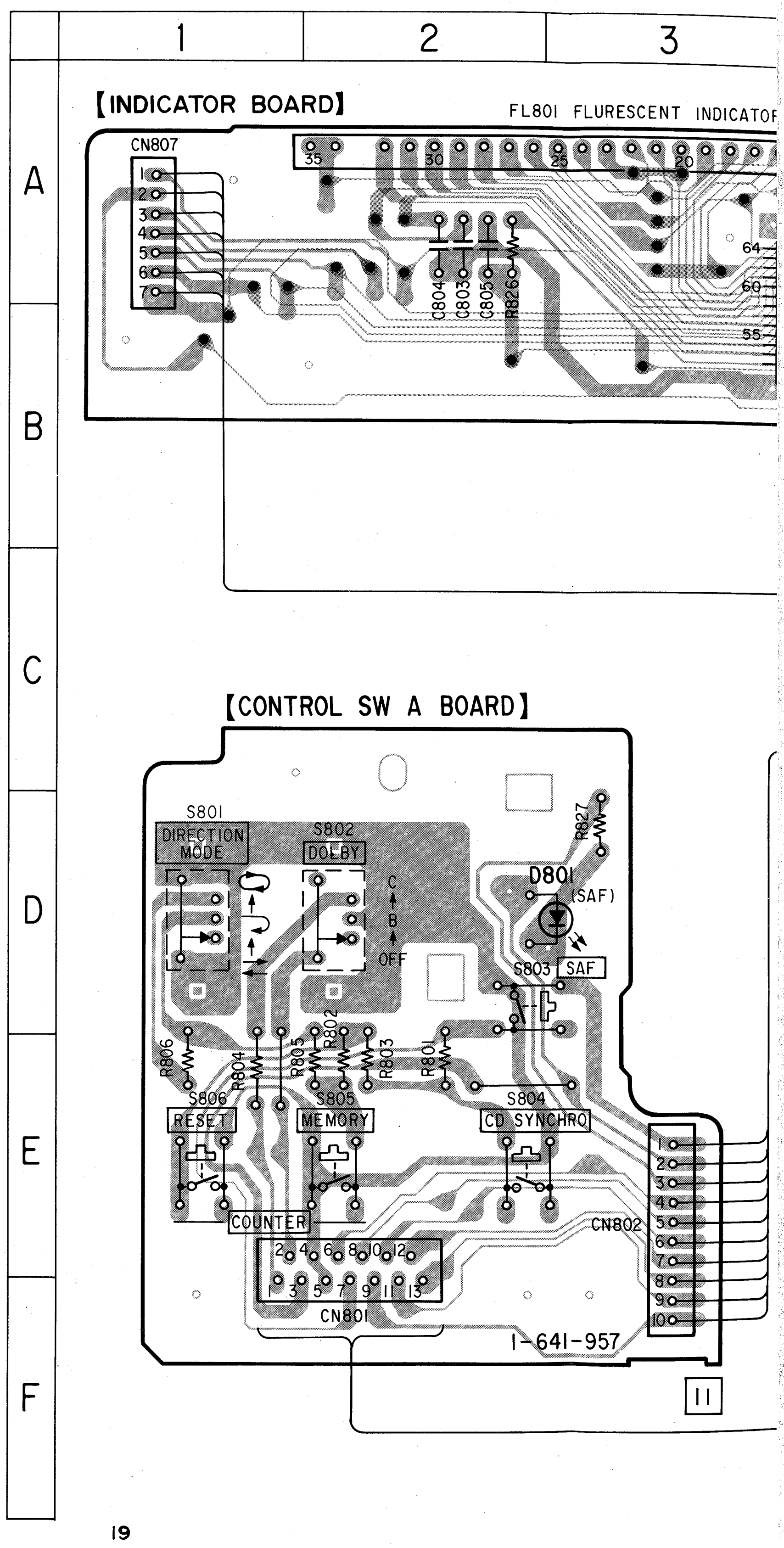
● SEMICONDUCTOR LOCATION

Ref. No.	Location
D701	E-11
D702	E-12
D703	E-11
D704	E-12
D750	E-6
D751	F-6
D752	E-6
D753	F-7
D754	F-7
D755	E-8
D757	F-8
D758	E-8
D801	D-3
D802	A-7
D803	A-7
D804	A-8
D805	A-8
D806	A-8
D807	B-10
D808	B-10
IC801	A-4
Q705	D-6
Q706	E-6
Q750	E-7
Q754	F-7

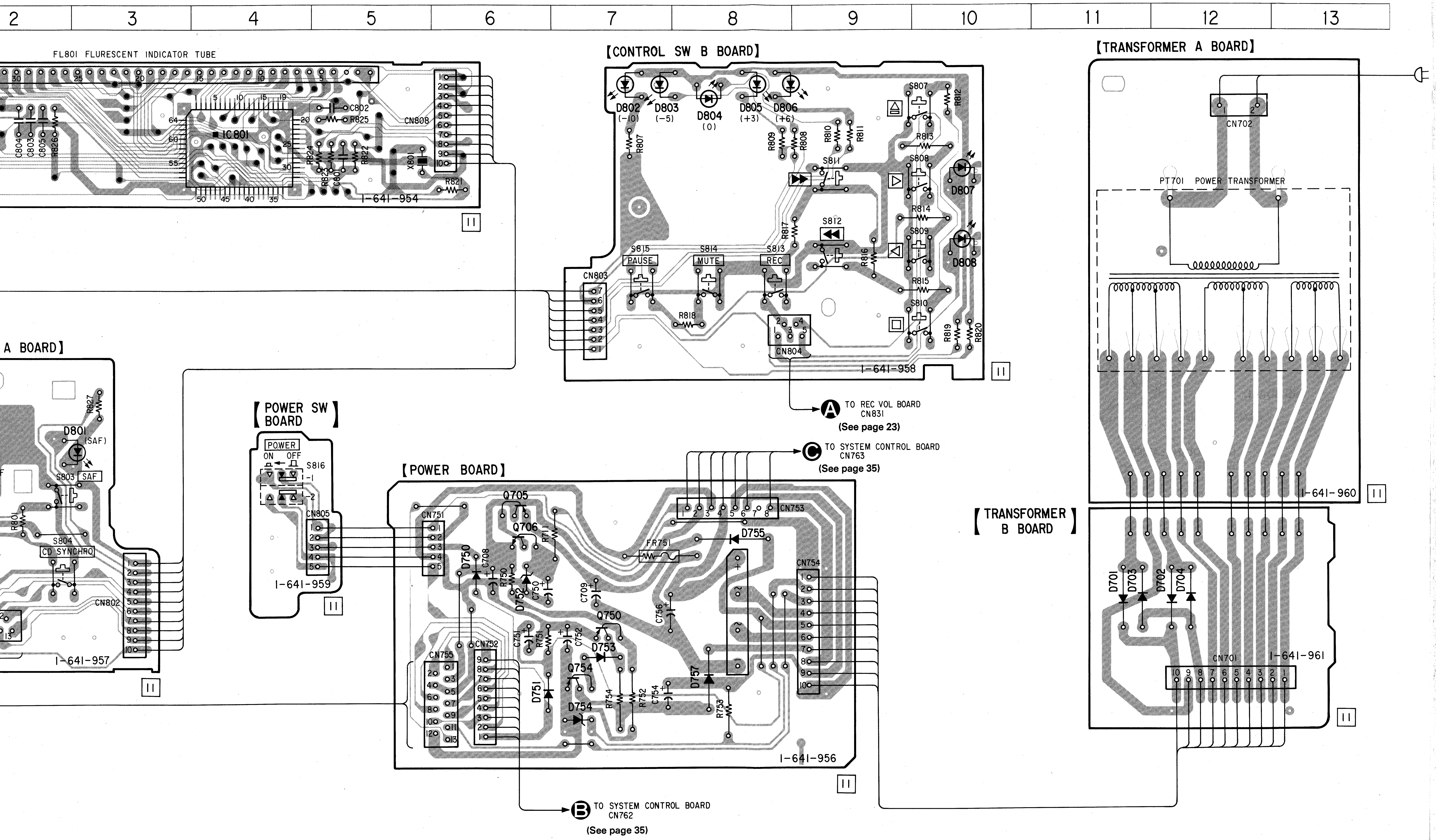
Notes on printed wiring boards:

- ○—— : Indicated a lead wire mounted on the component side
- ■ : Parts mounted on the conductor side
- ● : Through hole
- ▨ : Pattern from the side which enables seeing
- ░ : Pattern of the rear side

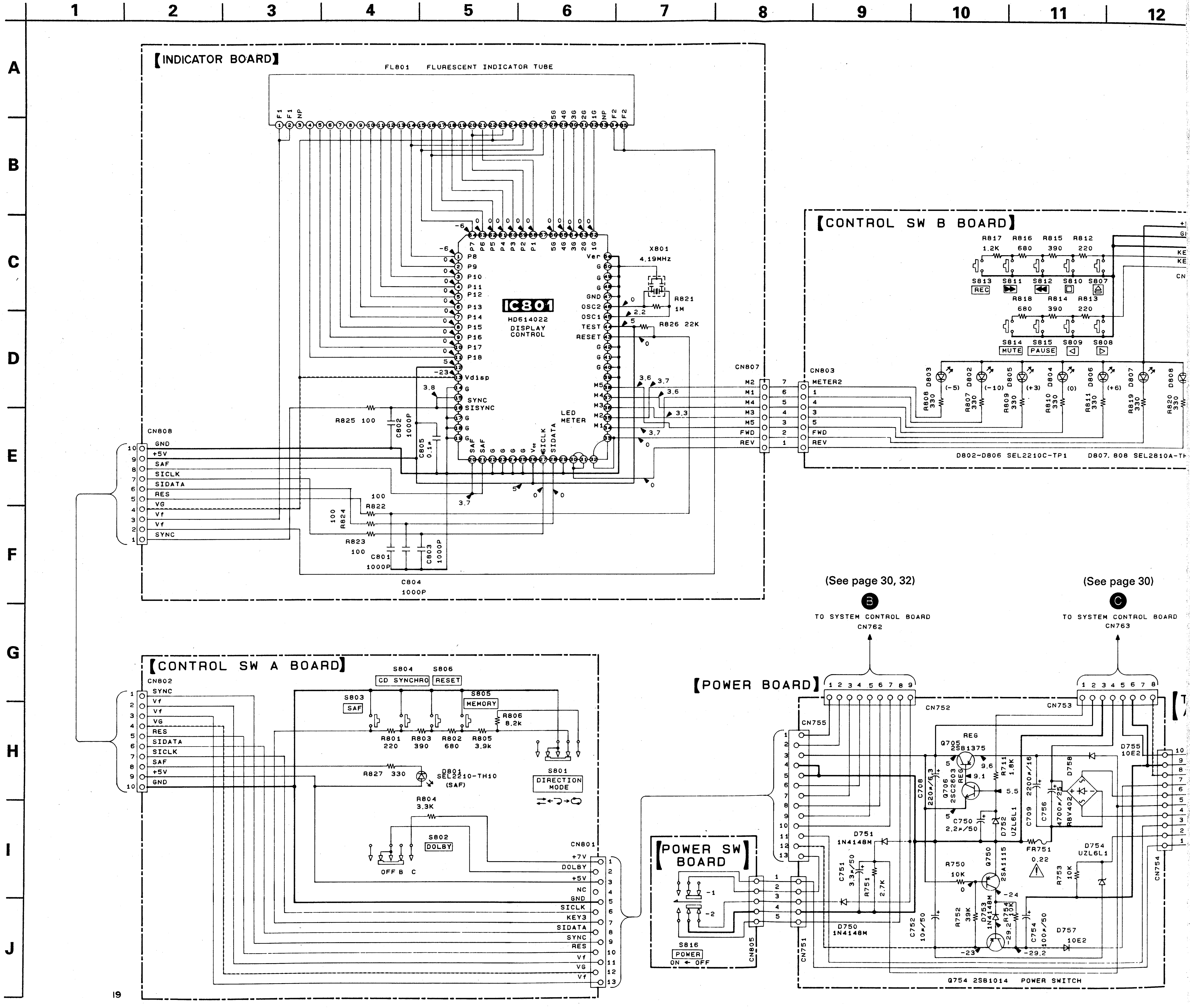
• See page 10 for circuit boards location.


1
2
3
A
B
C
D
E
F
【INDICATOR BOARD】
FL801 FLURESCENT INDICATOR
CN807
35
30
25
20
64
60
55
C804
C803
C805
R826
【CONTROL SW A BOARD】
S801
DIRECTION MODE
S802
DOLBY
C
B
OFF
R827
D801
(SAF)
S803 SAF
R806
R804
R805
R802
R803
R801
S806
RESET
S805
MEMORY
S804
CD SYNCHRO
COUNTER
CN802
CN801
1-641-957
11
19

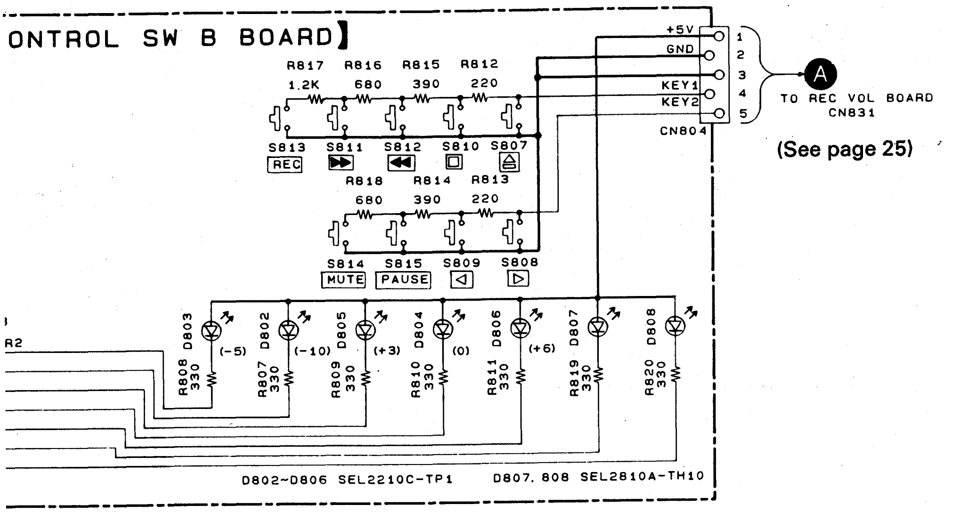
on.

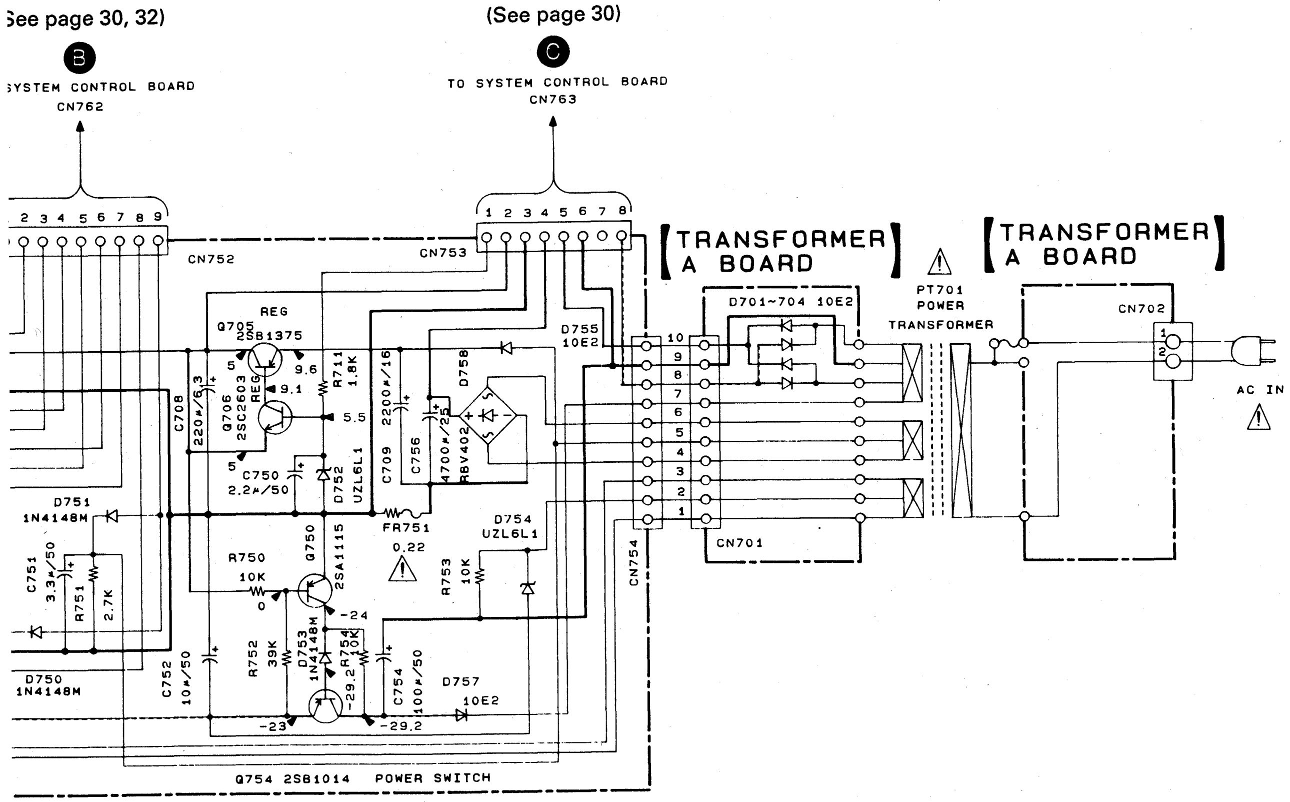

2
3
4
5
6
7
8
9
10
11
12
13
FL801 FLURESCENT INDICATOR TUBE
IC801
CN808
X801
R821
C802
R825
C804
C803
C805
R826
R824
R822
C801
1-641-954
[CONTROL SW B BOARD]
D802 (-10)
D803 (-5)
D804 (0)
D805 (+3)
D806 (+6)
D807
D808
R807
R808
R809
R810
R811
R812
R813
R814
R815
R816
R817
R818
R819
R820
S807
S808
S809
S810
S811
S812
S813 REC
S814 MUTE
S815 PAUSE
CN803
CN804
1-641-958
TO REC VOL BOARD CN831
(See page 23)
A BOARD]
D801 (SAF)
R827
S803 SAF
R801
S804 CD SYNCHRO
CN802
1-641-957
[POWER SW BOARD]
POWER
ON OFF
S816
CN805
1-641-959
[POWER BOARD]
TO SYSTEM CONTROL BOARD CN763
(See page 35)
Q705
Q706
R711
FR751
D755
CN751
CN752
CN753
CN754
CN755
D750
C708
R750
D752
C750
C709
C756
Q750
C751
R751
C752
D753
Q754
D751
D754
R754
R752
C754
D757
R753
1-641-956
TO SYSTEM CONTROL BOARD CN762
(See page 35)
[TRANSFORMER A BOARD]
CN702
PT701 POWER TRANSFORMER
1-641-960
[TRANSFORMER B BOARD]
D701
D703
D702
D704
CN701
1-641-961
11

4-5. SCHEMATIC DIAGRAM (DISPLAY/POWER SUPPLY SECTION)



1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
[INDICATOR BOARD]
FL801 FLURESCENT INDICATOR TUBE
F1 F1 NP
5G 4G 3G 2G 1G NP F2 F2
IC801
HD614022
DISPLAY
CONTROL
P7 P6 P5 P4 P3 P2 P1
P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18
Vdisp
SYNC
SISYNC
Vcc
SAF
SICLK
SIDATA
LED METER
Ver
GND
OSC2
OSC1
TEST
RESET
M5 M4 M3 M2 M1
X801
4.19MHz
R821
1M
R826 22K
R825 100
C802
1000P
C805
0.1μ
R822
100
R824
100
R823
100
C801
1000P
C803
1000P
C804
1000P
CN808
GND
+5V
SAF
SICLK
SIDATA
RES
VG
Vf
Vf
SYNC
CN807
M2 M1 M4 M3 M5 FWD REV
CN803
METER2
[CONTROL SW B BOARD]
R817 1.2K
R816 680
R815 390
R812 220
S813 REC
S811
S812
S810
S807
R818 680
R814 390
R813 220
S814 MUTE
S815 PAUSE
S809
S808
D803 D802 D805 D804 D806 D807 D808
(-5) (-10) (+3) (0) (+6)
R808 330
R807 330
R809 330
R810 330
R811 330
R819 330
R820 330
D802-D806 SEL2210C-TP1
D807, 808 SEL2810A-TH
[CONTROL SW A BOARD]
CN802
SYNC
Vf
Vf
VG
RES
SIDATA
SICLK
SAF
+5V
GND
S804
CD SYNCHRO
S806
RESET
S803
SAF
S805
MEMORY
R806
8.2k
R801 220
R803 390
R802 680
R805 3.9k
R827 330
D801
SEL2210-TH10
(SAF)
S801
DIRECTION MODE
R804
3.3K
S802
DOLBY
OFF B C
CN801
+7V
DOLBY
+5V
NC
GND
SICLK
KEY3
SIDATA
SYNC
RES
Vf
VG
Vf
19
(See page 30, 32)
TO SYSTEM CONTROL BOARD
CN762
(See page 30)
TO SYSTEM CONTROL BOARD
CN763
[POWER BOARD]
CN752
CN753
CN755
[POWER SW BOARD]
S816
POWER
ON ← OFF
CN805
CN751
REG
Q705
2SB1375
Q706
2SC2603
R711
1.8K
C708
220μ/6.3
C709
2200μ/16
C756
4700μ/25
D758
RBV402
D755
10E2
C750
2.2μ/50
D752
UZL6L1
D751
1N4148M
FR751
0.22
D754
UZL6L1
R750
10K
Q750
2SA1115
R753
10K
C751
3.3μ/50
R751
2.7K
D750
1N4148M
C752
10μ/50
R752
39K
D753
1N4148M
R754
10K
C754
100μ/50
D757
10E2
Q754 2SB1014 POWER SWITCH
CN754


ONTROL SW B BOARD
R817 1.2K
R816 680
R815 390
R812 220
S813 REC
S811
S812
S810
S807
R818 680
R814 390
R813 220
S814 MUTE
S815 PAUSE
S809
S808
+5V
GND
KEY1
KEY2
CN804
1 2 3 4 5
A
TO REC VOL BOARD CN831
(See page 25)
D803 (-5)
D802 (-10)
D805 (+3)
D804 (0)
D806 (+6)
D807
D808
R808 330
R807 330
R809 330
R810 330
R811 330
R819 330
R820 330
R2
D802~D806 SEL2210C-TP1
D807, 808 SEL2810A-TH10


See page 30, 32)
B
SYSTEM CONTROL BOARD CN762
(See page 30)
C
TO SYSTEM CONTROL BOARD CN763
2 3 4 5 6 7 8 9
CN752
1 2 3 4 5 6 7 8
CN753
TRANSFORMER A BOARD
TRANSFORMER A BOARD
D701~704 10E2
PT701 POWER TRANSFORMER
CN702
AC IN
CN701
CN754
REG
Q705 2SB1375
Q706 2SC2603 REG
9.6
9.1
5.5
R711 1.8K
C708 220μ/6.3
C750 2.2μ/50
D752 UZL6L1
C709 2200μ/16
C756 4700μ/25
D758 RBV402
D755 10E2
D751 1N4148M
D750 1N4148M
C751 3.3μ/50
R751 2.7K
FR751 0.22
D754 UZL6L1
R750 10K
Q750 2SA1115
R753 10K
-24
C752 10μ/50
R752 39K
D753 1N4148M
R754 10K
-29.2
C754 100μ/50
D757 10E2
-23
-29.2
Q754 2SB1014 POWER SWITCH

Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- ▭: Fuse resistor

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ━━: B+ Line
- ▪▪▪▪: B− Line
- ▭: Adjustment for repair
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : STOP
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path
  - ⟩ : PB
  - ⟫ : REC

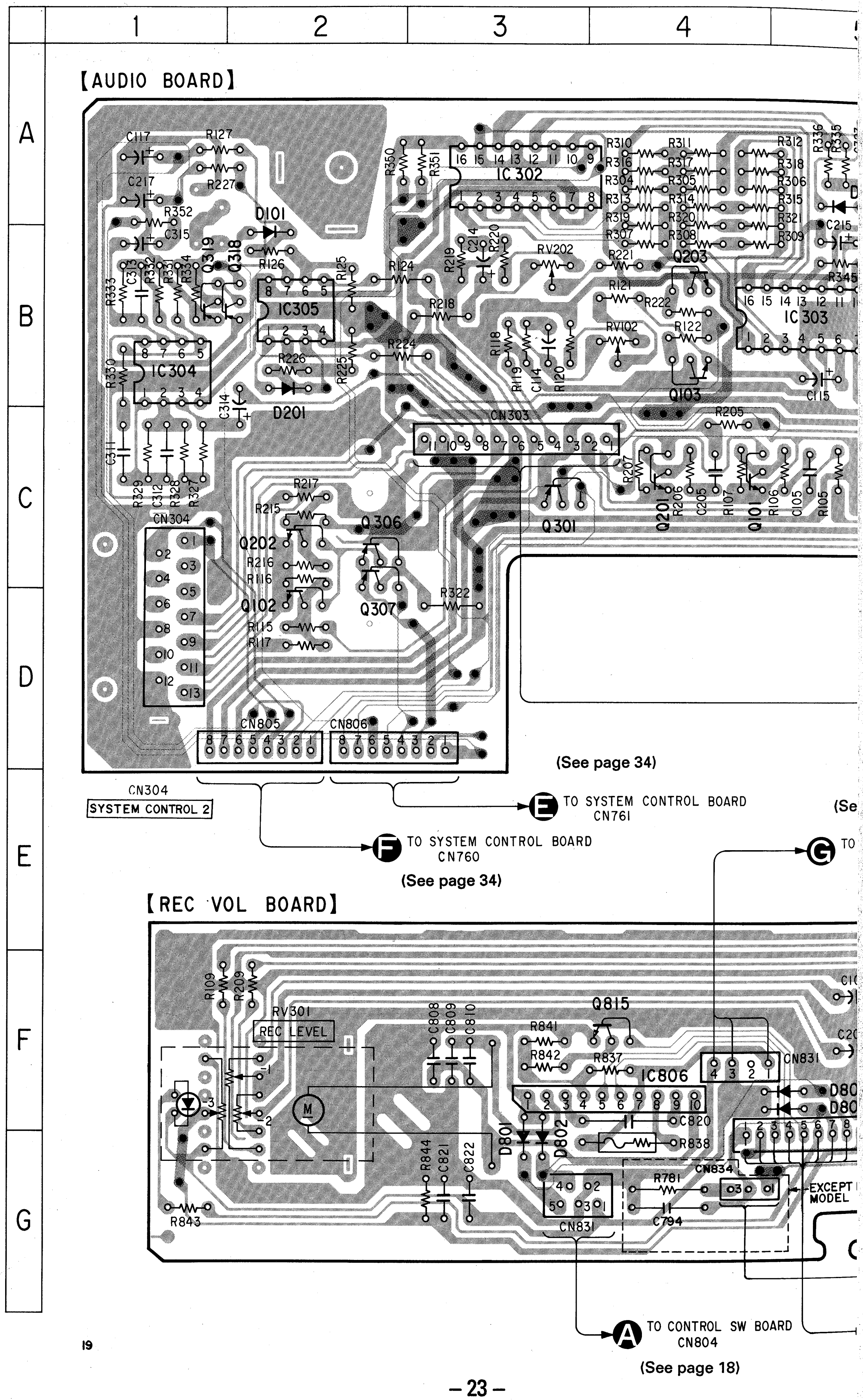
4-6. PRINTED WIRING BOARDS
(AUDIO SECTION)

● SEMICONDUCTOR LOCATION

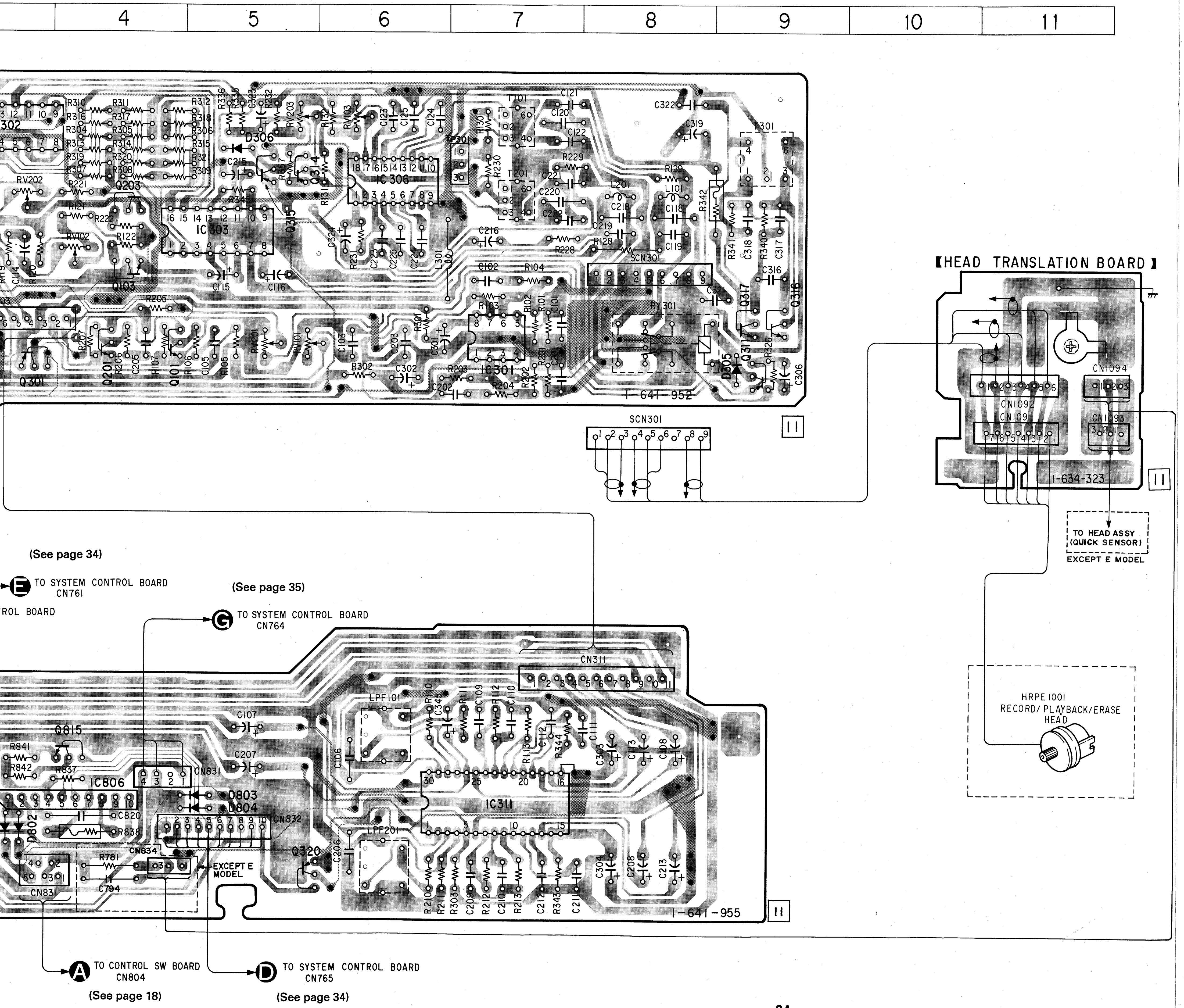
Ref. No.	Location
D101	B-2
D201	B-2
D305	C-9
D306	A-5
D801	G-3
D802	G-3
D803	F-5
D804	F-5
IC301	C-7
IC302	A-3
IC303	B-5
IC304	B-1
IC305	B-2
IC306	B-6
IC311	F-7
IC806	F-4
Q101	C-4
Q102	D-2
Q103	B-4
Q201	C-4
Q202	C-2
Q203	B-4
Q301	C-3
Q306	C-2
Q307	C-2
Q311	C-9
Q314	B-5
Q315	B-5
Q316	C-9
Q317	C-9
Q318	B-2
Q319	B-1
Q320	G-5
Q815	F-4

Notes on printed wiring boards:
- ○——: Indicated a lead wire mounted on the component side
- ■ : Parts mounted on the conductor side
- ● : Through hole
- ▨ : Pattern from the side which enables seeing
- ▨ : Pattern of the rear side

• See page 11 for circuit boards location, 15 for semiconductor lead layouts.


1
2
3
4
A
B
C
D
E
F
G
[AUDIO BOARD]
IC302
IC303
IC304
IC305
D101
D201
Q103
Q203
Q202
Q102
Q306
Q307
Q301
Q201
Q101
CN303
CN304
CN805
CN806
(See page 34)
CN304
SYSTEM CONTROL 2
E TO SYSTEM CONTROL BOARD CN761
F TO SYSTEM CONTROL BOARD CN760
(See page 34)
G TO
[REC VOL BOARD]
RV301
REC LEVEL
Q815
IC806
D801
D802
CN831
CN834
EXCEPT MODEL
A TO CONTROL SW BOARD CN804
(See page 18)
19

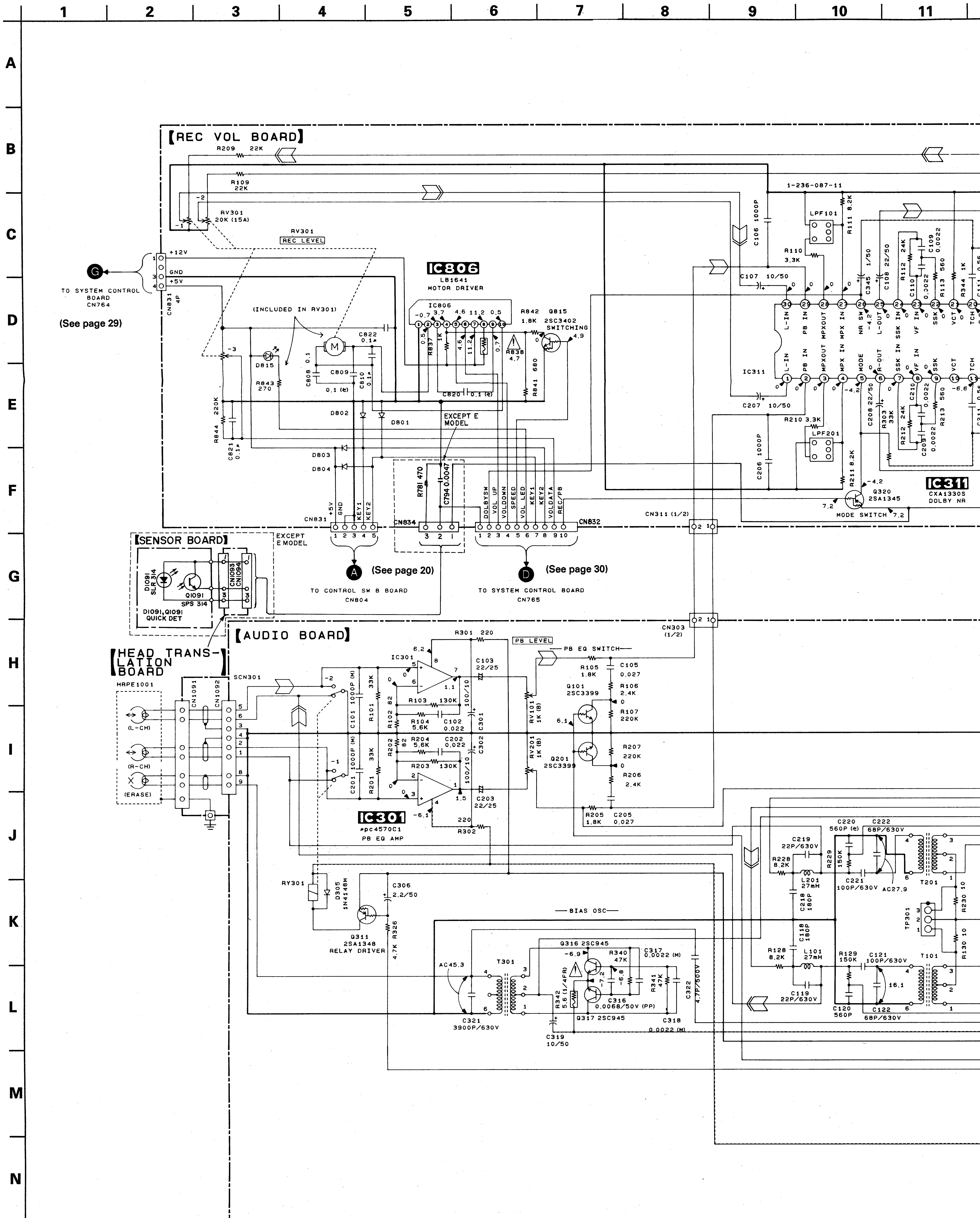
r lead layouts.

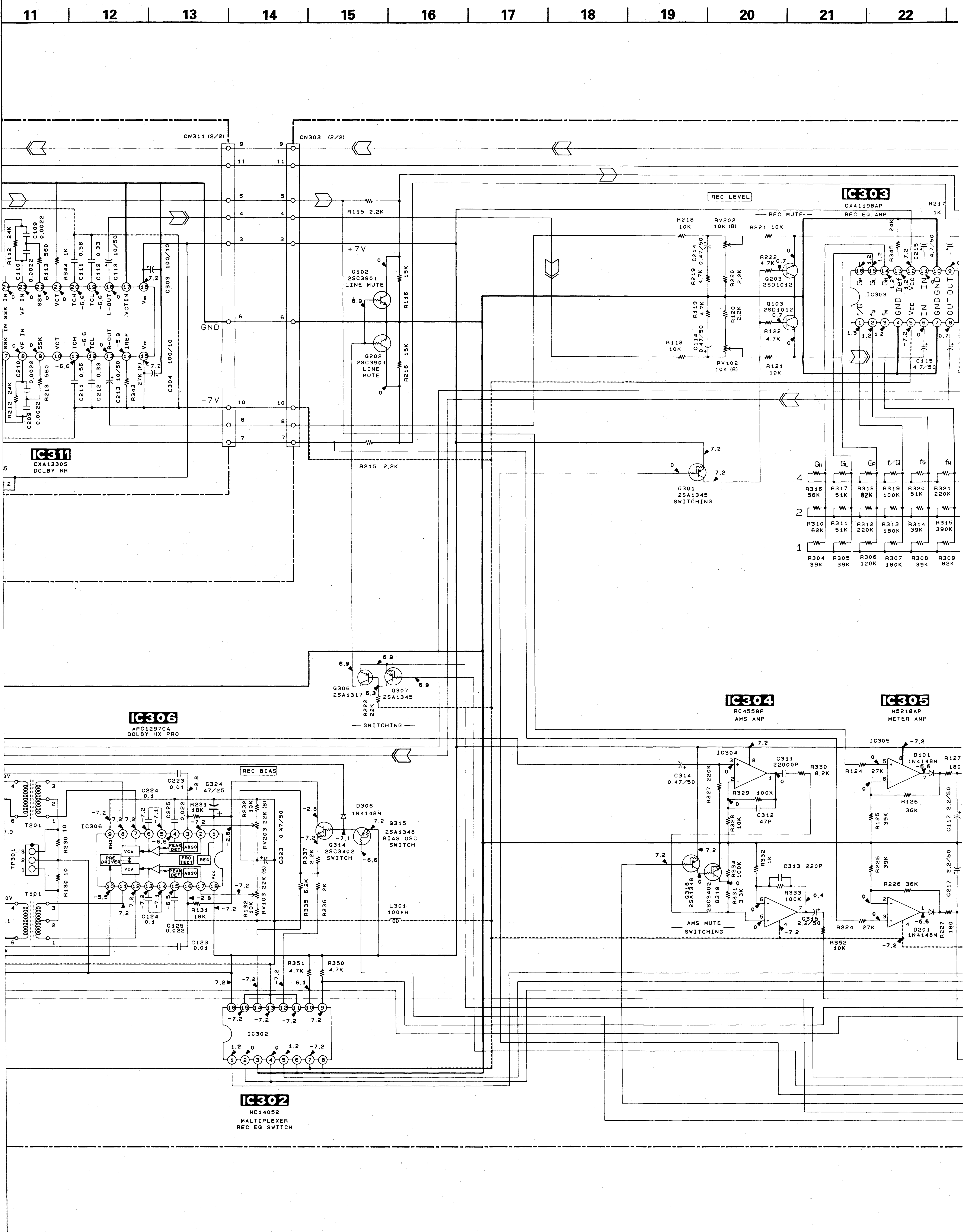


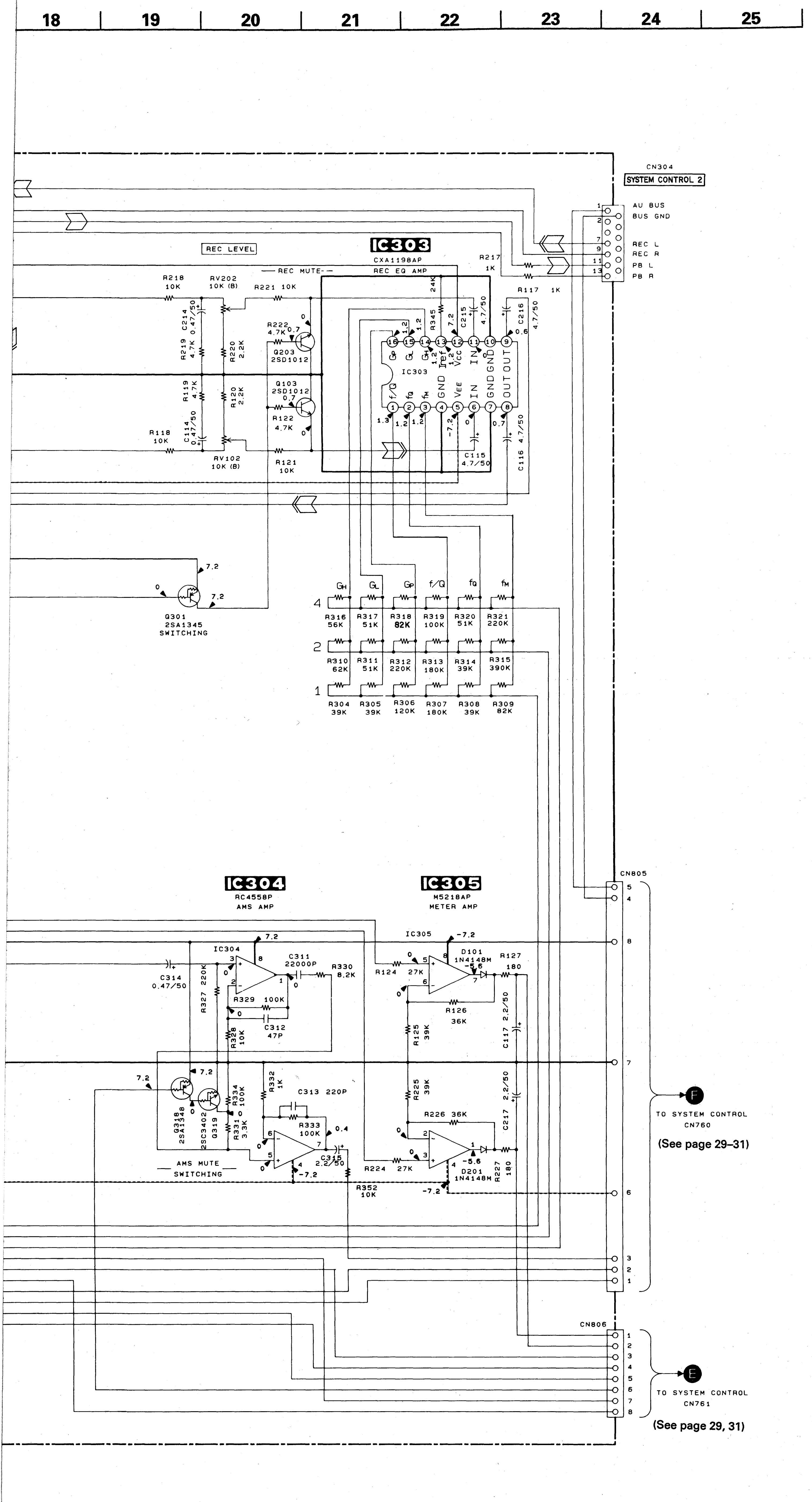
4
5
6
7
8
9
10
11
IC 306
IC 303
Q203
Q103
Q315
Q314
D306
T101
T201
T301
TP301
SCN301
RY301
IC301
Q301
Q201
Q101
Q317
Q316
D305
1-641-952
11
【HEAD TRANSLATION BOARD】
CN1092
CN1091
CN1094
CN1093
1-634-323
11
TO HEAD ASSY (QUICK SENSOR)
EXCEPT E MODEL
HRPE 1001
RECORD/PLAYBACK/ERASE HEAD
(See page 34)
E TO SYSTEM CONTROL BOARD CN761
ROL BOARD
(See page 35)
G TO SYSTEM CONTROL BOARD CN764
CN311
LPF101
LPF201
IC311
Q320
Q815
IC806
CN831
CN832
CN834
D802
D803
D804
EXCEPT E MODEL
1-641-955
11
A TO CONTROL SW BOARD CN804
(See page 18)
D TO SYSTEM CONTROL BOARD CN765
(See page 34)

4-7. SCHEMATIC DIAGRAM (AUDIO SECTION)

- See page 29 for IC block diagram.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
[REC VOL BOARD]
R209 22K
R109 22K
RV301 20K (15A)
RV301 REC LEVEL
+12V
GND
+5V
CN831 4P
G
TO SYSTEM CONTROL BOARD CN764
(See page 29)
(INCLUDED IN RV301)
M
D815
R843 270
C808 0.1
C809
C810 0.1
C822 0.1
IC806
LB1641
MOTOR DRIVER
R837 1K
C820 0.1 (E)
R838 4.7
R842 1.8K
Q815 2SC3402 SWITCHING
R841 680
R844 220K
C821 0.1
D802
D801
D803
D804
EXCEPT E MODEL
R781 470
C794 0.0047
DOLBYSW
VOL UP
VOLDOWN
SPEED
VOL LED
KEY1
KEY2
VOLDATA
REC/PB
+5V
GND
KEY1
KEY2
CN831
CN834
CN832
EXCEPT E MODEL
A
(See page 20)
TO CONTROL SW B BOARD CN804
D
(See page 30)
TO SYSTEM CONTROL BOARD CN765
CN311 (1/2)
CN303 (1/2)
[SENSOR BOARD]
D1091 SLR314
Q1091 SPS 314
CN1093
CN1094
D1091,Q1091 QUICK DET
[HEAD TRANSLATION BOARD]
HRPE1001
(L-CH)
(R-CH)
(ERASE)
CN1091
CN1092
SCN301
[AUDIO BOARD]
R301 220
IC301
C101 1000P (M)
R101 33K
R102 82
R103 130K
R104 5.6K
C102 0.022
C103 22/25
C301 100/10
C201 1000P (M)
R201 33K
R202 82
R204 5.6K
C202 0.022
R203 130K
C302 100/10
C203 22/25
R302 220
IC301
μPC4570C1
PB EQ AMP
PB LEVEL
PB EQ SWITCH
R105 1.8K
C105 0.027
R106 2.4K
Q101 2SC3399
R107 220K
RV101 1K (B)
RV201 1K (B)
Q201 2SC3399
R207 220K
R206 2.4K
R205 1.8K
C205 0.027
RY301
D305 1N4148M
C306 2.2/50
Q311 2SA1348 RELAY DRIVER
R326 4.7K
BIAS OSC
T301
AC45.3
C321 3900P/630V
Q316 2SC945
R340 47K
C317 0.0022 (M)
R342 5.6 (1/4FR)
R341 47K
C316 0.0068/50V (PP)
Q317 2SC945
C318 0.0022 (M)
C322 4.7P/500V
C319 10/50
1-236-087-11
C106 1000P
LPF101
R111 8.2K
R110 3.3K
C107 10/50
C345 1/50
C108 22/50
R112 24K
C110 0.0022
C109 0.0022
R113 560
R344 1K
L-IN
PB IN
MPXOUT
MPX IN
NR SW
L-OUT
SSK IN
VF IN
SSK
VCT
TCH
IC311
L-IN
PB IN
MPXOUT
MPX IN
MODE
R-OUT
SSK IN
VF IN
SSK
VCT
TCH
C207 10/50
R210 3.3K
LPF201
C206 1000P
C208 22/50
R303 33K
R212 24K
C210 0.0022
C209 0.0022
R213 560
R211 8.2K
Q320 2SA1345
MODE SWITCH
IC311
CXA1330S
DOLBY NR
C220 560P (E)
C222 68P/630V
C219 22P/630V
R228 8.2K
R229 150K
L201 27mH
C221 100P/630V
AC27.9
C218 180P
T201
TP301
R230 10
C118 180P
R128 8.2K
L101 27mH
R129 150K
C121 100P/630V
T101
R130 10
C119 22P/630V
C120 560P
C122 68P/630V
16.1
19


11
12
13
14
15
16
17
18
19
20
21
22
CN311 (2/2)
CN303 (2/2)
GND
-7V
+7V
IC311
CXA1330S
DOLBY NR
R112 24K
C110 0.0022
C109 0.0022
R113 560
R344 1K
C111 0.56
C112 0.33
C113 10/50
C303 100/10
C304 100/10
R212 24K
C210 0.0022
C209 0.0022
R213 560
C211 0.56
C212 0.33
C213 10/50
R343 27K (F)
SSK IN
VF IN
SSK
VCT
TCH
TCL
L-OUT
R-OUT
IREF
VCTIN
R115 2.2K
R215 2.2K
Q102
2SC3901
LINE MUTE
Q202
2SC3901
LINE MUTE
R116 15K
R216 15K
REC LEVEL
REC MUTE
R218 10K
RV202 10K (B)
R221 10K
C214 0.47/50
R219 4.7K
R220 2.2K
R222 4.7K
Q203 2SD1012
Q103 2SD1012
R119 4.7K
R120 2.2K
C114 0.47/50
R122 4.7K
R118 10K
RV102 10K (B)
R121 10K
IC303
CXA1198AP
REC EQ AMP
R217 1K
R345 24K
C215 4.7/50
C115 4.7/50
Q301
2SA1345
SWITCHING
R316 56K
R317 51K
R318 82K
R319 100K
R320 51K
R321 220K
R310 62K
R311 51K
R312 220K
R313 180K
R314 39K
R315 390K
R304 39K
R305 39K
R306 120K
R307 180K
R308 39K
R309 82K
Q306
2SA1317
Q307
2SA1345
R322 22K
SWITCHING
IC306
μPC1297CA
DOLBY HX PRO
REC BIAS
T201
T101
TP301
R230 10
R130 10
C223 0.01
C224 0.1
C324 47/25
C225 0.022
R231 18K
R131 18K
C124 0.1
C125 0.022
C123 0.01
R232 10K
R132 10K
RV203 22K (B)
RV103 22K (B)
C323 0.47/50
PRE DRIVER
VCA
PEAK DET
ABSO
PROTECT
REG
Q314
2SC3402
SWITCH
D306
1N4148M
Q315
2SA1348
BIAS OSC SWITCH
R337 2.2K
R335 6.2K
R336 2K
L301 100μH
R351 4.7K
R350 4.7K
IC302
MC14052
MALTIPLEXER
REC EQ SWITCH
IC304
RC4558P
AMS AMP
C314 0.47/50
R327 220K
C311 22000P
R330 8.2K
R329 100K
C312 47P
R328 10K
Q318 2SA1348
Q319 2SC3402
R334 100K
R331 3.3K
R332 1K
C313 220P
R333 100K
C315 2.2/50
AMS MUTE SWITCHING
R352 10K
IC305
M5218AP
METER AMP
R124 27K
R126 36K
R125 39K
D101 1N4148M
R127 180
C117 2.2/50
R225 39K
R226 36K
R224 27K
D201 1N4148M
R227 180
C217 2.2/50


18
19
20
21
22
23
24
25
CN304
SYSTEM CONTROL 2
AU BUS
BUS GND
REC L
REC R
PB L
PB R
REC LEVEL
IC303
CXA1198AP
REC EQ AMP
— REC MUTE —
R217 1K
R117 1K
R218 10K
RV202 10K (B)
R221 10K
R222 4.7K
Q203 2SD1012
Q103 2SD1012
R122 4.7K
R118 10K
RV102 10K (B)
R121 10K
C214 0.47/50
C114 0.47/50
R219 4.7K
R119 4.7K
R220 2.2K
R120 2.2K
R345 24K
C215 4.7/50
C216 4.7/50
C115 4.7/50
C116 4.7/50
Gp GL GH Iref Vcc IN GND OUT
f/Q fQ fH GND VEE IN GND OUT
Q301 2SA1345 SWITCHING
GH GL GP f/Q fQ fH
4
R316 56K
R317 51K
R318 82K
R319 100K
R320 51K
R321 220K
2
R310 62K
R311 51K
R312 220K
R313 180K
R314 39K
R315 390K
1
R304 39K
R305 39K
R306 120K
R307 180K
R308 39K
R309 82K
IC304
RC4558P
AMS AMP
IC305
M5218AP
METER AMP
C314 0.47/50
R327 220K
C311 22000P
R330 8.2K
R329 100K
C312 47P
R328 10K
R124 27K
D101 1N4148M
R127 180
R126 36K
R125 39K
C117 2.2/50
R225 39K
R226 36K
C217 2.2/50
R224 27K
D201 1N4148M
R227 180
Q318 2SA1348
Q319 2SC3402
R334 100K
R331 3.3K
R332 1K
C313 220P
R333 100K
C315 2.2/50
R352 10K
AMS MUTE SWITCHING
CN805
CN806
F
TO SYSTEM CONTROL CN760
(See page 29–31)
E
TO SYSTEM CONTROL CN761
(See page 29, 31)

Notes on schematic diagram:

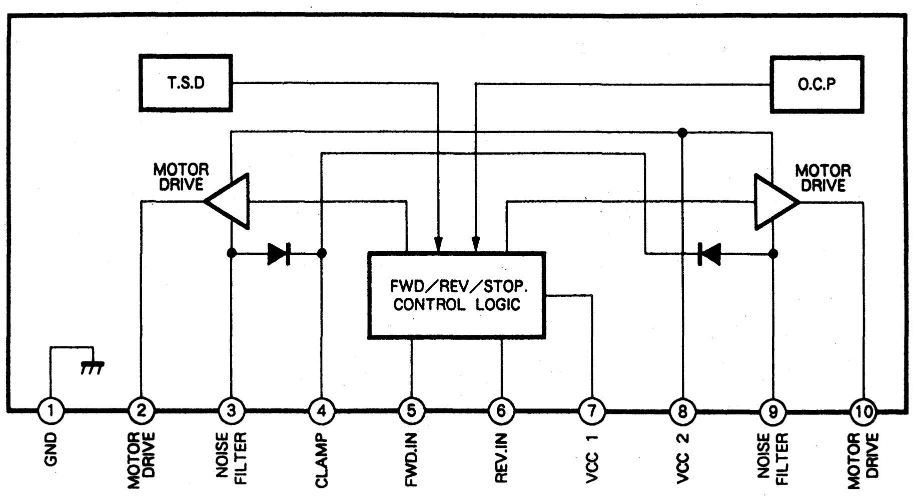
- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- : Fuse resistor

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line
- ▪▪▪▪ : B− Line
- ☐ : Adjustment for repair
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : STOP
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path
  - ⟩ : PB
  - ⟫ : REC

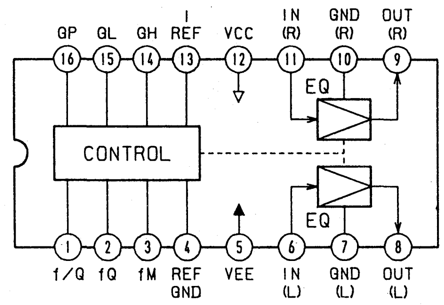
● IC BLOCK DIAGRAMS

• BA6219B



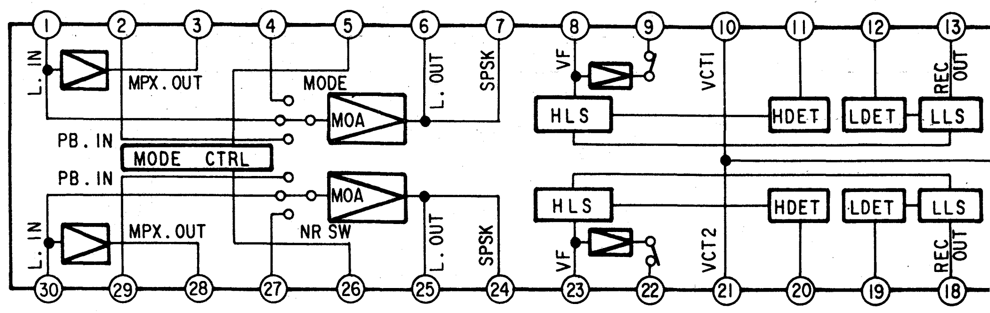
T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP. CONTROL LOGIC
1 GND
2 MOTOR DRIVE
3 NOISE FILTER
4 CLAMP
5 FWD.IN
6 REV.IN
7 VCC 1
8 VCC 2
9 NOISE FILTER
10 MOTOR DRIVE

• CXA1198AP



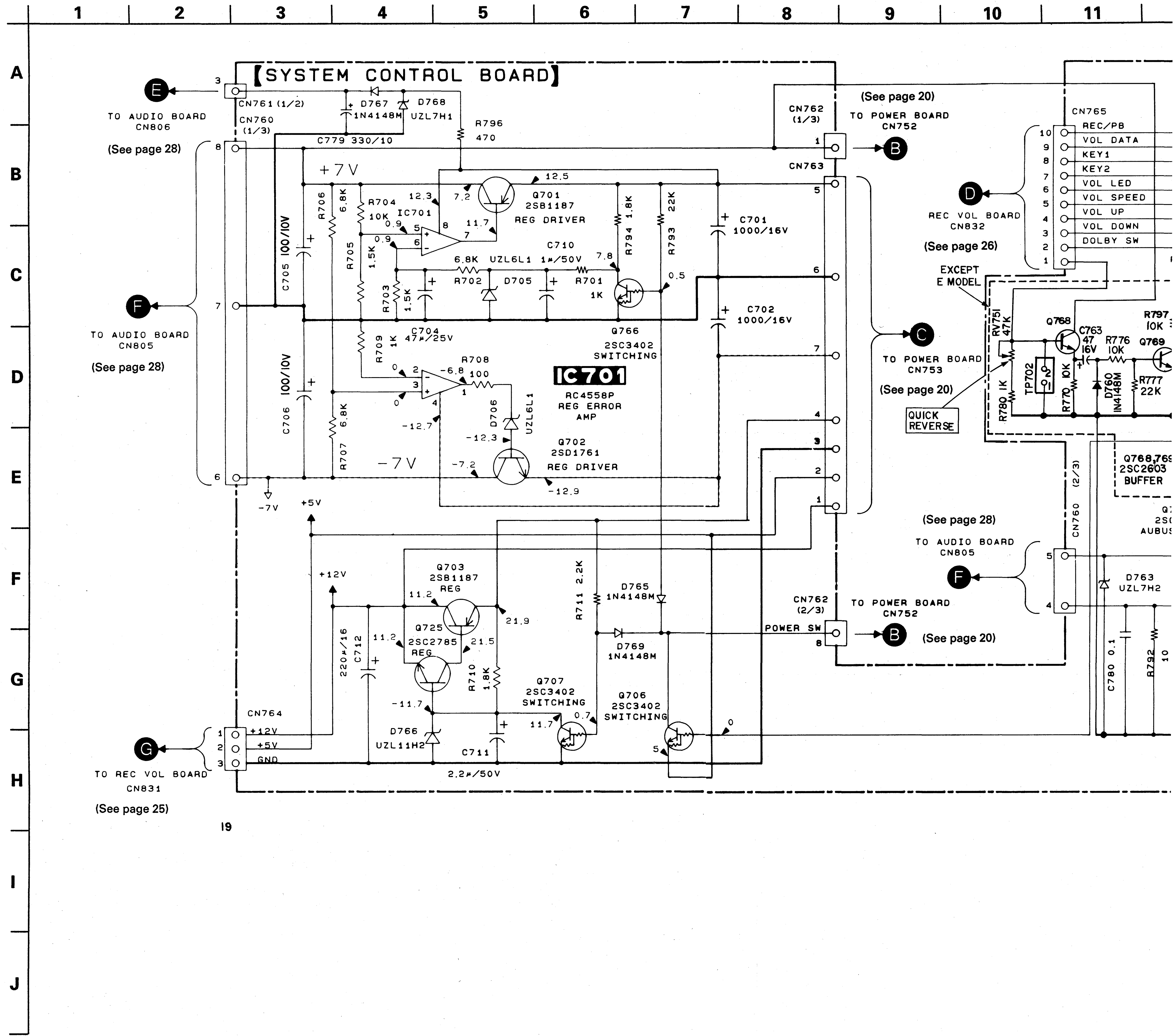
16 GP
15 GL
14 GH
13 I REF
12 VCC
11 IN (R)
10 GND (R)
9 OUT (R)
CONTROL
EQ
EQ
1 1/Q
2 1Q
3 1M
4 REF GND
5 VEE
6 IN (L)
7 GND (L)
8 OUT (L)

• CXA1330S



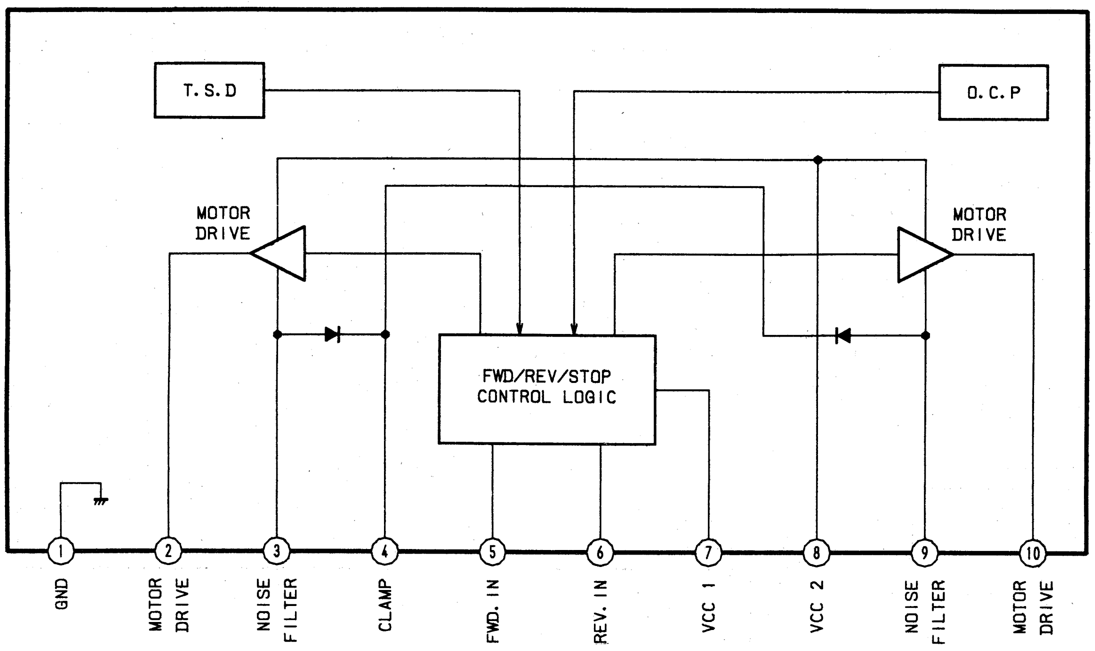
L. IN
MPX. OUT
MODE
PB. IN
MODE CTRL
PB. IN
MOA
MOA
NR SW
MPX. OUT
L. IN
L. OUT
SPSK
VF
VCT1
HLS
HDET
LDET
LLS
REC OUT
L. OUT
SPSK
VF
VCT2
HLS
HDET
LDET
LLS
REC OUT

4-8. SCHEMATIC DIAGRAM (SYSTEM CONTROL SECTION)

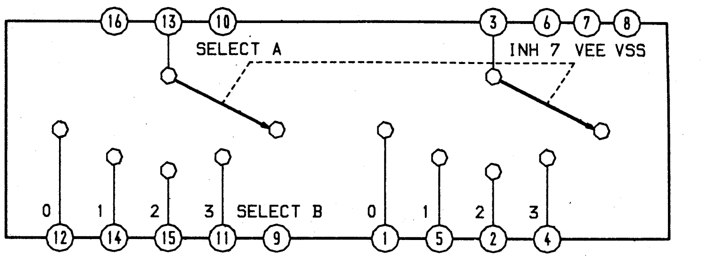


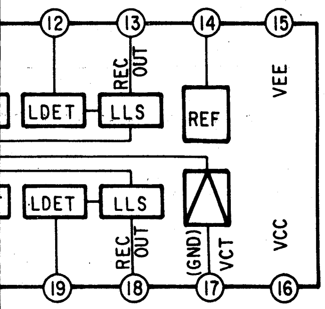
[SYSTEM CONTROL BOARD]
TO AUDIO BOARD CN806
(See page 28)
CN761 (1/2)
CN760 (1/3)
D767
D768
1N4148M
UZL7H1
C779 330/10
R796 470
CN762 (1/3)
(See page 20)
TO POWER BOARD CN752
CN763
+7V
R706 6.8K
R704 10K
IC701
Q701 2SB1187 REG DRIVER
R794 1.8K
R793 22K
C701 1000/16V
C705 100/10V
R705 1.5K
R703 1.5K
C710 1μ/50V
6.8K UZL6L1
R702
D705
R701 1K
C702 1000/16V
TO AUDIO BOARD CN805
(See page 28)
C704 47μ/25V
Q766 2SC3402 SWITCHING
R709 1K
R708 100
IC701 RC4558P REG ERROR AMP
C706 100/10V
R707 6.8K
D706 UZL6L1
Q702 2SD1761 REG DRIVER
-7V
TO POWER BOARD CN753
(See page 20)
+5V
+12V
Q703 2SB1187 REG
Q725 2SC2785 REG
C712 220μ/16
R710 1.8K
R711 2.2K
D765 1N4148M
D769 1N4148M
CN762 (2/3)
POWER SW
TO POWER BOARD CN752
(See page 20)
Q707 2SC3402 SWITCHING
Q706 2SC3402 SWITCHING
D766 UZL11H2
C711 2.2μ/50V
CN764
+12V
+5V
GND
TO REC VOL BOARD CN831
(See page 25)
19
CN765
REC/PB
VOL DATA
KEY1
KEY2
VOL LED
VOL SPEED
VOL UP
VOL DOWN
DOLBY SW
REC VOL BOARD CN832
(See page 26)
EXCEPT E MODEL
RV751 47K
Q768
C763 47 16V
R776 10K
Q769
R797 10K
TP702
R770 10K
D760 1N4148M
R777 22K
R780 1K
QUICK REVERSE
Q768,769 2SC2603 BUFFER
CN760 (2/3)
(See page 28)
TO AUDIO BOARD CN805
D763 UZL7H2
C780 0.1
R792 10
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J

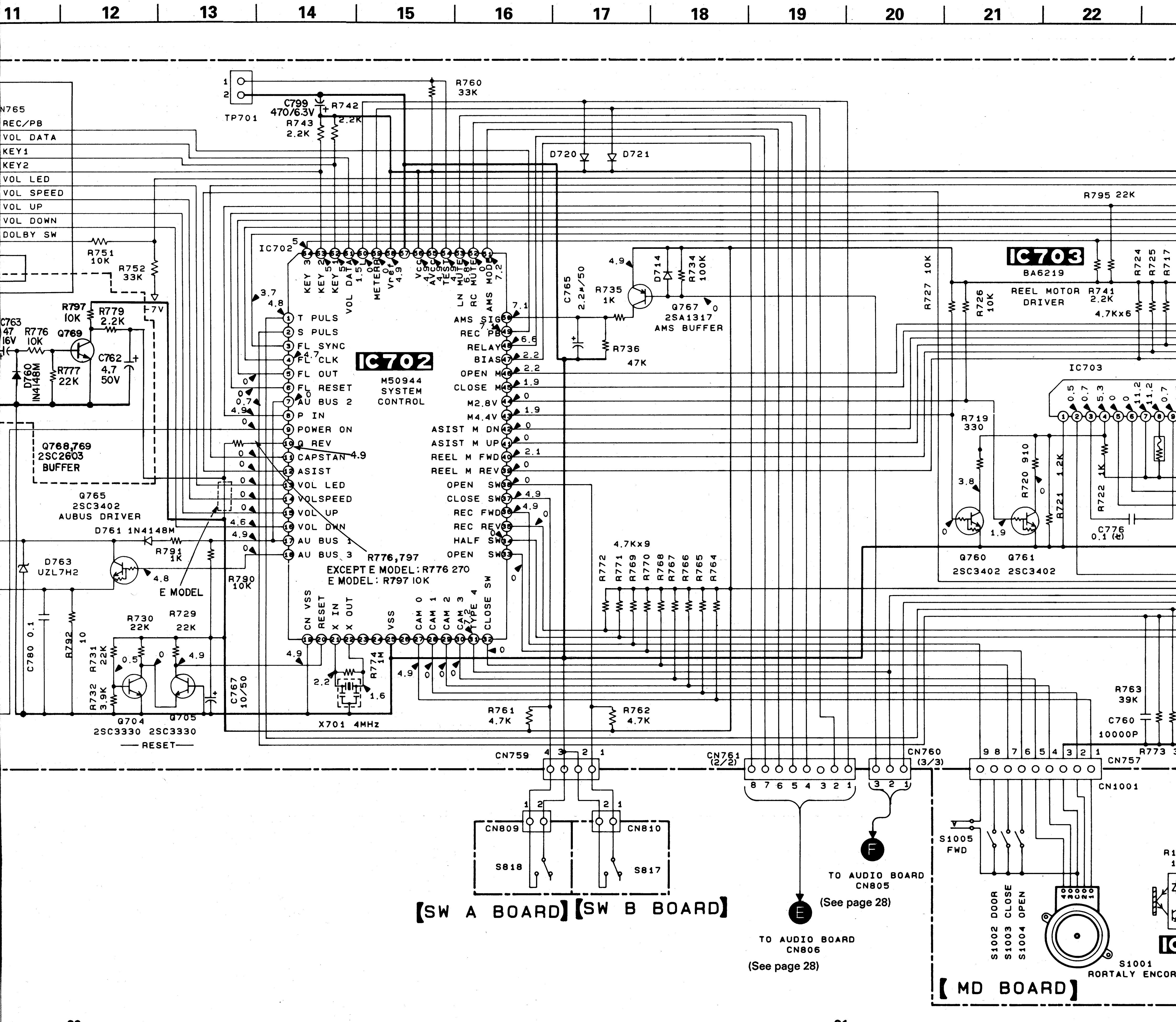
• LB1641

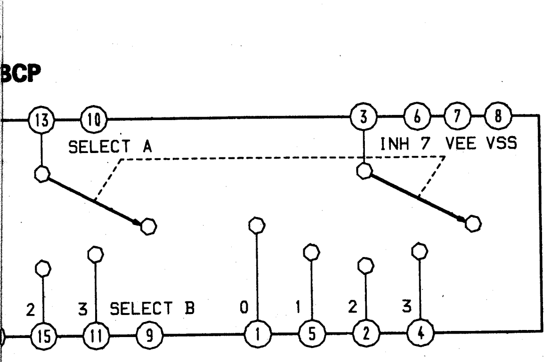

T.S.D
O.C.P
MOTOR DRIVE
MOTOR DRIVE
FWD/REV/STOP CONTROL LOGIC
1 GND
2 MOTOR DRIVE
3 NOISE FILTER
4 CLAMP
5 FWD. IN
6 REV. IN
7 VCC 1
8 VCC 2
9 NOISE FILTER
10 MOTOR DRIVE

• MC14052BCP


16
13
10
3
6
7
8
SELECT A
INH 7 VEE VSS
0
1
2
3
SELECT B
0
1
2
3
12
14
15
11
9
1
5
2
4


12
13
14
15
REC OUT
LDET
LLS
REF
VEE
LDET
LLS
REC OUT
(GND) VCT
VCC
19
18
17
16


11
12
13
14
15
16
17
18
19
20
21
22
CN765
REC/PB
VOL DATA
KEY1
KEY2
VOL LED
VOL SPEED
VOL UP
VOL DOWN
DOLBY SW
TP701
C799 470/6.3V
R742 2.2K
R743 2.2K
R760 33K
D720
D721
R795 22K
R751 10K
R752 33K
C763 47 16V
R776 10K
Q769
R797 10K
R779 2.2K
C762 4.7 50V
R777 22K
D760 1N4148M
Q768,769 2SC2603 BUFFER
Q765 2SC3402 AUBUS DRIVER
D761 1N4148M
R791 1K
D763 UZL7H2
E MODEL
R790 10K
C780 0.1
R792 10
R731 22K
R732 3.9K
R730 22K
R729 22K
Q704 2SC3330
Q705 2SC3330
RESET
C767 10/50
X701 4MHz
R774 1M
IC702
M50944 SYSTEM CONTROL
T PULS
S PULS
FL SYNC
FL CLK
FL OUT
FL RESET
AU BUS 2
P IN
POWER ON
Q REV
CAPSTAN
ASIST
VOL LED
VOLSPEED
VOL UP
VOL DWN
AU BUS 1
AU BUS 3
KEY 3
KEY 2
KEY 1
VOL DATA
METER
Vref
VCC
AVCC
TEST
MUTE
MUTE
MODE
LN
RC
AMS
AMS SIG
REC PB
RELAY
BIAS
OPEN M
CLOSE M
M2.8V
M4.4V
ASIST M DN
ASIST M UP
REEL M FWD
REEL M REV
OPEN SW
CLOSE SW
REC FWD
REC REV
HALF SW
OPEN SW
CN VSS
RESET
X IN
X OUT
VSS
CAM 0
CAM 1
CAM 2
CAM 3
TYPE 4
CLOSE SW
R776,797
EXCEPT E MODEL: R776 270
E MODEL: R797 10K
C765 2.2/50
R735 1K
D714
R734 100K
Q767 2SA1317 AMS BUFFER
R736 47K
4.7Kx9
R772
R771
R769
R770
R768
R767
R766
R765
R764
R761 4.7K
R762 4.7K
CN759
CN809
CN810
S818
S817
[SW A BOARD]
[SW B BOARD]
CN761 (2/2)
CN760 (3/3)
TO AUDIO BOARD CN806
(See page 28)
TO AUDIO BOARD CN805
(See page 28)
E
F
R727 10K
R726 10K
IC703 BA6219 REEL MOTOR DRIVER
R741 2.2K
R724
R725
R717
4.7Kx6
R719 330
R720 910
R721 1.2K
R722 1K
C776 0.1
Q760 2SC3402
Q761 2SC3402
R763 39K
C760 10000P
R773
CN757
CN1001
S1005 FWD
S1002 DOOR
S1003 CLOSE
S1004 OPEN
S1001 RORTALY ENCOR
[MD BOARD]

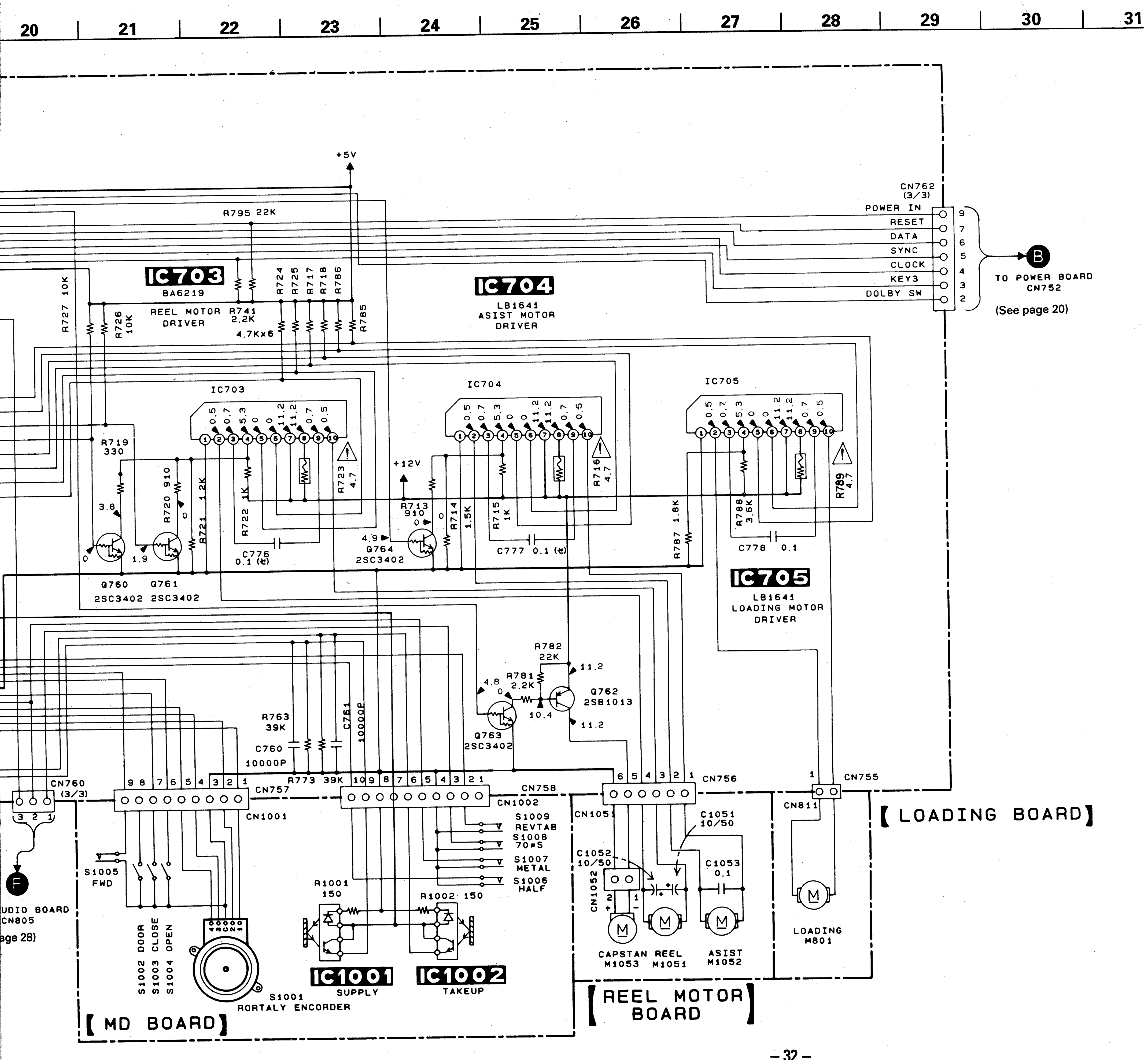

3CP
13
10
SELECT A
3
6
7
8
INH 7 VEE VSS
2
3
SELECT B
0
1
2
3
15
11
9
1
5
2
4

Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- —WW—: Fuse resistor

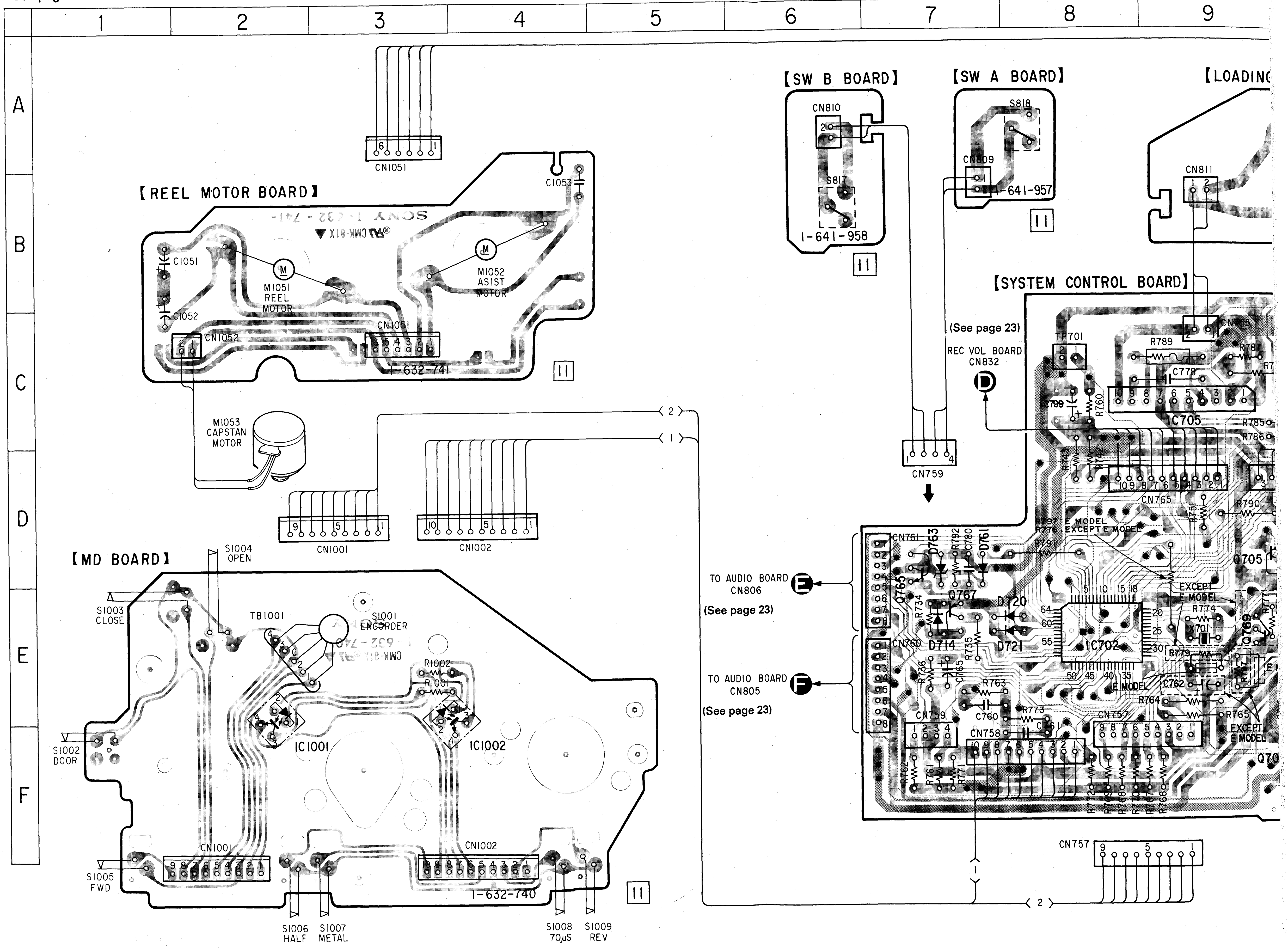
> The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.

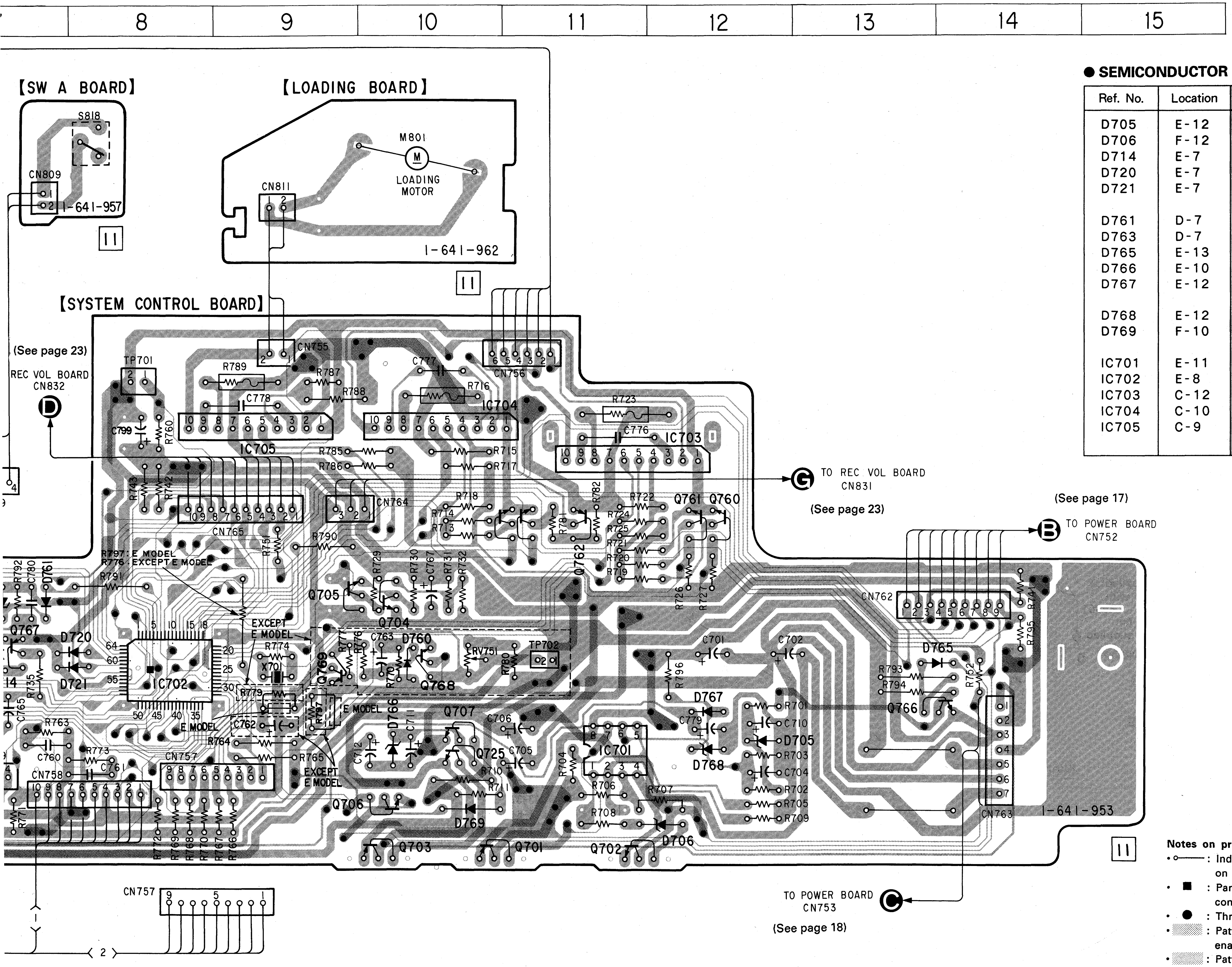
- ━━━: B+ Line
- ■■■■: B− Line
- ▭: Adjustment for repair
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : STOP
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path
  - ⟩ : PB
  - ⟫ : REC


20
21
22
23
24
25
26
27
28
29
30
31
+5V
R795 22K
CN762 (3/3)
POWER IN
RESET
DATA
SYNC
CLOCK
KEY3
DOLBY SW
9
7
6
5
4
3
2
B
TO POWER BOARD CN752
(See page 20)
IC703
BA6219
REEL MOTOR DRIVER
R741 2.2K
4.7K×6
R724
R725
R717
R718
R786
R785
R727 10K
R726 10K
IC704
LB1641
ASIST MOTOR DRIVER
IC703
IC704
IC705
0.5
0.7
5.3
0
0
11.2
11.2
0.7
0.5
R719 330
3.8
R720 910
R721 1.2K
R722 1K
R723 4.7
C776 0.1 (±)
0
1.9
Q760
Q761
2SC3402 2SC3402
+12V
R713 910
4.9
Q764
2SC3402
R714 1.5K
R715 1K
C777 0.1 (±)
R716 4.7
R787 1.8K
R788 3.6K
C778 0.1
R789 4.7
IC705
LB1641
LOADING MOTOR DRIVER
R782 22K
11.2
R781 2.2K
4.8
0
10.4
Q762
2SB1013
11.2
Q763
2SC3402
R763 39K
C761 10000P
C760 10000P
R773 39K
CN760 (3/3)
3 2 1
F
AUDIO BOARD CN805
(See page 28)
CN757
CN1001
9 8 7 6 5 4 3 2 1
CN758
CN1002
10 9 8 7 6 5 4 3 2 1
S1009 REVTAB
S1008 70μS
S1007 METAL
S1006 HALF
S1005 FWD
S1002 DOOR
S1003 CLOSE
S1004 OPEN
S1001 RORTALY ENCORDER
R1001 150
R1002 150
IC1001 SUPPLY
IC1002 TAKEUP
【 MD BOARD】
CN756
6 5 4 3 2 1
CN1051
C1051 10/50
C1052 10/50
C1053 0.1
CN1052
CAPSTAN M1053
REEL M1051
ASIST M1052
【REEL MOTOR BOARD】
CN755
CN811
LOADING M801
【 LOADING BOARD】

4-9. **PRINTED WIRING BOARDS** (SYSTEM CONTROL SECTION)

- See page 11 for circuit boards location, 15 for semiconductor lead layouts.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
【REEL MOTOR BOARD】
CN1051
C1053
C1051
C1052
M1051 REEL MOTOR
M1052 ASIST MOTOR
CN1052
1-632-741
M1053 CAPSTAN MOTOR
【MD BOARD】
S1004 OPEN
S1003 CLOSE
TB1001
S1001 ENCORDER
R1002
R1001
IC1001
IC1002
S1002 DOOR
S1005 FWD
CN1001
CN1002
1-632-740
S1006 HALF
S1007 METAL
S1008 70μS
S1009 REV
【SW B BOARD】
CN810
S817
1-641-958
【SW A BOARD】
S818
CN809
1-641-957
【LOADING
CN811
【SYSTEM CONTROL BOARD】
(See page 23)
REC VOL BOARD CN832
D
CN759
TP701
CN755
R789
R787
C778
C799
R760
IC705
R785
R786
R743
R742
CN765
R751
R790
R797 : E MODEL
R776 : EXCEPT E MODEL
R791
Q705
CN761
D763
R792
C780
D761
Q765
Q767
D720
R734
D714
D721
CN760
IC702
EXCEPT E MODEL
R774
X701
R779
Q769
R736
C765
R735
R763
E MODEL
C762
R764
C760
R773
C761
CN758
CN757
R765
EXCEPT E MODEL
R762
R761
R771
R772
R769
R768
R770
R767
R766
TO AUDIO BOARD CN806
E
(See page 23)
TO AUDIO BOARD CN805
F
(See page 23)
CN757


8
9
10
11
12
13
14
15
【SW A BOARD】
S818
CN809
1-641-957
11
【LOADING BOARD】
M801
LOADING MOTOR
CN811
1-641-962
11
【SYSTEM CONTROL BOARD】
(See page 23)
REC VOL BOARD CN832
D
TP701
CN755
R789
R787
R788
C778
C777
R716
IC704
CN756
R723
C776
IC703
C799
R760
IC705
R785
R786
R715
R717
G
TO REC VOL BOARD CN831
(See page 23)
(See page 17)
B
TO POWER BOARD CN752
CN765
CN764
R718
R714
R713
R782
R722
Q761
Q760
R724
R725
R721
R720
R719
R790
R751
R797: E MODEL
R776: EXCEPT E MODEL
R791
R729
R730
C767
R731
R732
Q762
Q705
R726
R727
CN762
R741
R795
Q767
D720
D721
IC702
EXCEPT E MODEL
R774
X701
Q704
C763
D760
RV751
TP702
R780
R777
R776
R770
Q769
Q768
C701
C702
R796
D765
R793
R794
R762
R792
C780
D761
R735
R779
R781
E MODEL
D767
D766
Q707
C706
C779
R701
C710
D705
R703
C704
R702
R705
R709
Q766
R763
C765
C762
R764
E MODEL
C760
R773
C761
CN757
R765
EXCEPT E MODEL
CN758
C712
C711
Q725
C705
R710
R711
R704
IC701
D768
R706
R707
R708
Q706
D769
Q703
Q701
Q702
D706
CN763
1-641-953
11
R772
R769
R768
R770
R767
R766
R771
TO POWER BOARD CN753
(See page 18)
C
CN757
2

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D705	E-12	IC1001	F-2
D706	F-12	IC1002	F-4
D714	E-7		
D720	E-7	Q701	F-10
D721	E-7	Q702	F-11
		Q703	F-10
D761	D-7	Q704	E-10
D763	D-7	Q705	D-9
D765	E-13		
D766	E-10	Q706	F-10
D767	E-12	Q707	E-10
		Q725	E-10
D768	E-12	Q760	D-12
D769	F-10	Q761	D-12
IC701	E-11	Q762	D-11
IC702	E-8	Q765	E-7
IC703	C-12	Q766	E-13
IC704	C-10	Q767	E-7
IC705	C-9	Q768	E-10
		Q769	E-9

Notes on printed wiring boards:

- •○——: Indicated a lead wire mounted on the component side
- • ■ : Parts mounted on the conductor side
- • ● : Through hole
- • ▨ : Pattern from the side which enables seeing
- • ▨ : Pattern of the rear side

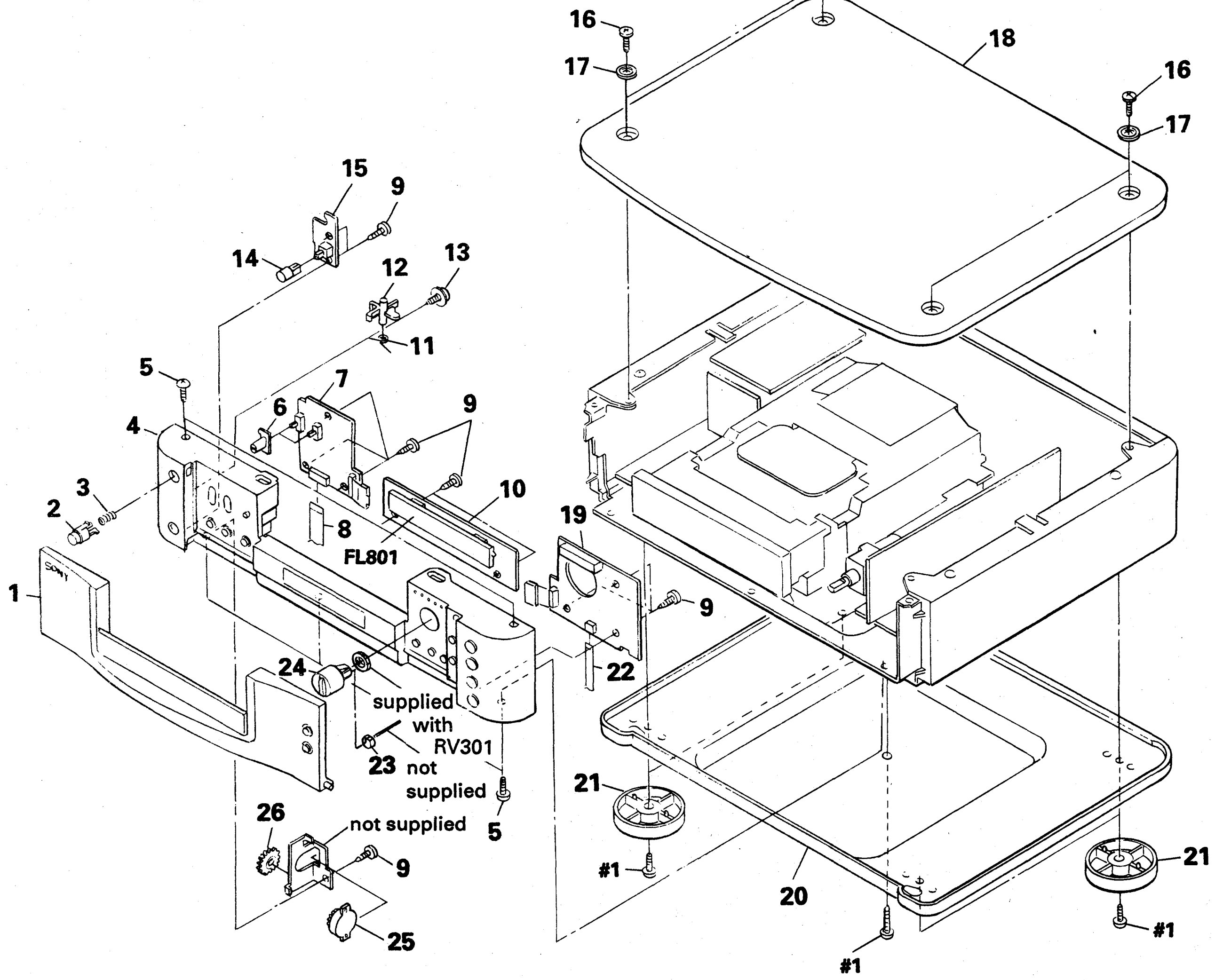
SECTION 5
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB,BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(# mark) list is given in the last of this parts list.
- G : Germany Model

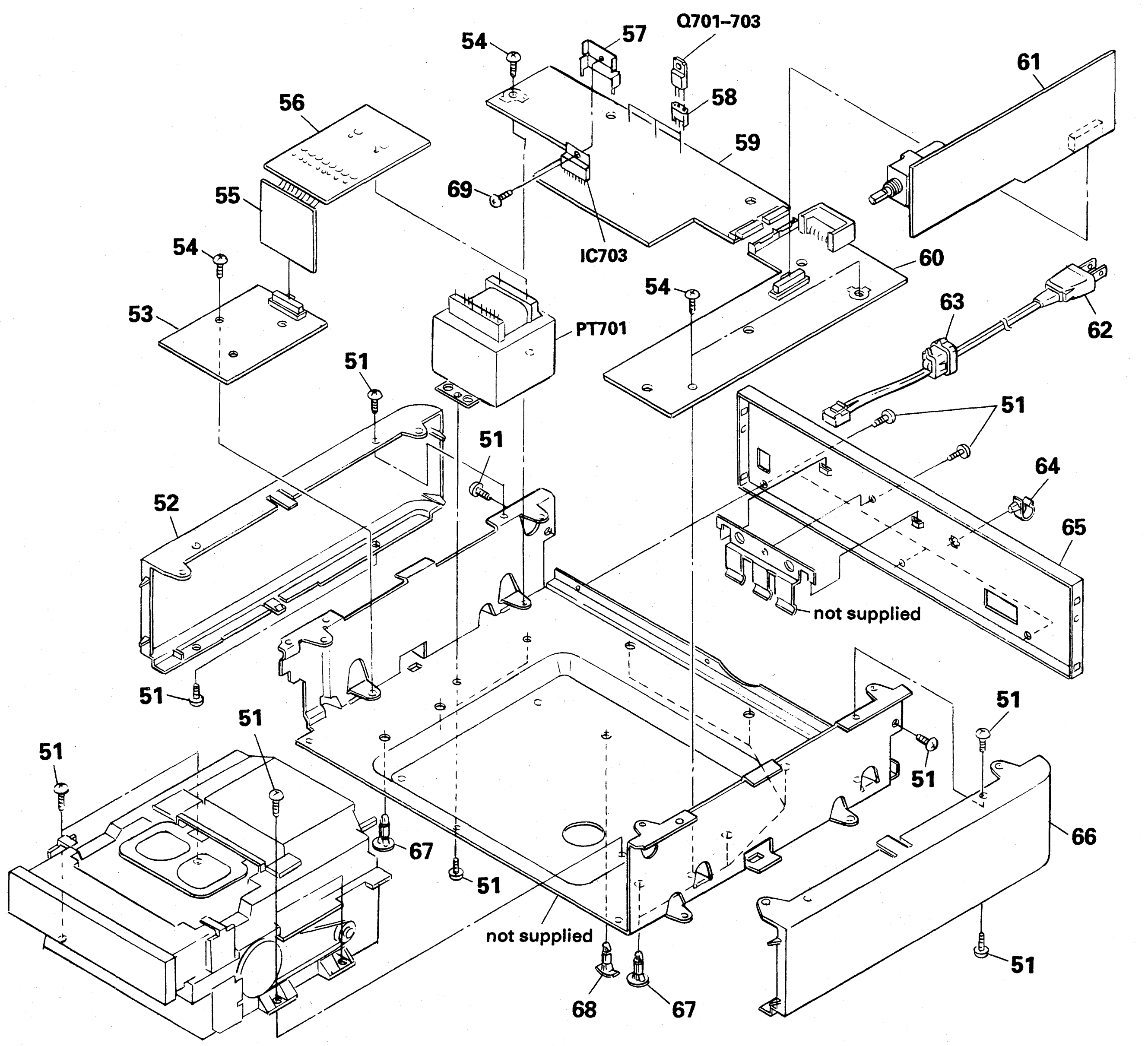
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET SECTION



Ref. No.	Part No.	Description	Remarks
1	X-3363-779-1	LID (TC) ASSY	
2	4-948-111-01	BUTTON (OPEN)	
3	4-948-750-01	SPRING, COMPRESSION	
4	X-3365-167-1	PANEL ASSY, FRONT	
5	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
6	3-373-512-01	KNOB (SLIDE)	
* 7	1-641-957-11	CONTROL SW (A) BOARD	
8	1-590-036-11	WIRE, FLAT TYPE (13 CORE)	
9	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
* 10	1-641-954-11	INDICATOR BOARD	
11	3-377-152-01	SPRING, TORSION	
12	4-948-110-01	HOOK	
13	4-933-134-01	SCREW (+PTPWH M2.6X6)	
14	3-373-515-01	BUTTON (POWER)	
* 15	1-641-959-11	POWER SW BOARD	
16	7-682-549-04	SCREW (M3X10), S TITE, + BTT	
17	4-928-025-51	ESCUTCHEON (TOP)	
* 18	4-948-022-01	COVER (UPPER)	
* 19	1-641-958-11	CONTROL SW (B) BOARD	
* 20	3-373-501-01	COVER (BOTTOM) (TC)	
21	4-948-027-01	FOOT (DIA. 50)	
22	1-575-666-11	WIRE, FLAT TYPE (5 CORE)	
23	4-922-978-01	HOLDER (FIBER)	
24	3-373-511-01	KNOB (REC)	
25	3-712-786-31	DAMPER, OIL	
26	4-948-109-01	GEAR	

5-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks
51	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
52	4-948-019-01	PLATE (A) (L), SIDE	
* 53	A-2006-657-A	POWER BOARD, COMPLETE	
54	3-375-584-11	SCREW (NATEC BVTT)(M3X8)	
* 55	1-641-960-11	TRANSFORMER (A) BOARD	
* 56	1-641-961-11	TRANSFORMER (B) BOARD	
* 57	3-356-925-01	HEAT SINK	
* 58	1-562-327-00	CONNECTOR SOCKET 3P	
* 59	A-2006-656-A	SYSTEM CONTROL BOARD, COMPLETE (E)	
* 59	A-2006-808-A	SYSTEM CONTROL BOARD, COMPLETE (AEP, G)	
* 60	A-2006-655-A	AUDIO BOARD, COMPLETE (E)	
* 60	A-2006-807-A	AUDIO BOARD, COMPLETE (AEP, G)	
* 61	A-2006-658-A	REC VOL BOARD, COMPLETE (E)	
* 61	A-2006-809-A	REC VOL BOARD, COMPLETE (AEP, G)	
⚠62	1-575-651-11	CORD, POWER (AEP, G)	
⚠62	1-575-656-11	CORD, POWER (E)	
63	3-703-244-11	BUSHING (2104), CORD (AEP, G)	
63	3-703-571-00	BUSHING (S) (4516), CORD (E)	
* 64	4-949-235-01	HOOK	
* 65	4-947-629-21	PANEL, BACK (AEP)	
* 65	4-947-629-31	PANEL, BACK (G)	
* 65	4-947-629-51	PANEL, BACK (E:120V)	
* 65	4-947-629-61	PANEL, BACK (E:220-230V)	
66	4-948-020-01	PLATE (A) (R), SIDE	
* 67	3-704-198-21	SUPPORT, PC	
* 68	4-912-181-41	SUPPORT, PC	
69	3-375-580-01	SCREW (NATEC BVTT) (M3X6)	
⚠PT701	1-450-939-11	TRANSFORMER, POWER (E:120V)	
⚠PT701	1-450-940-11	TRANSFORMER, POWER (AEP, G, E:220-230V)	

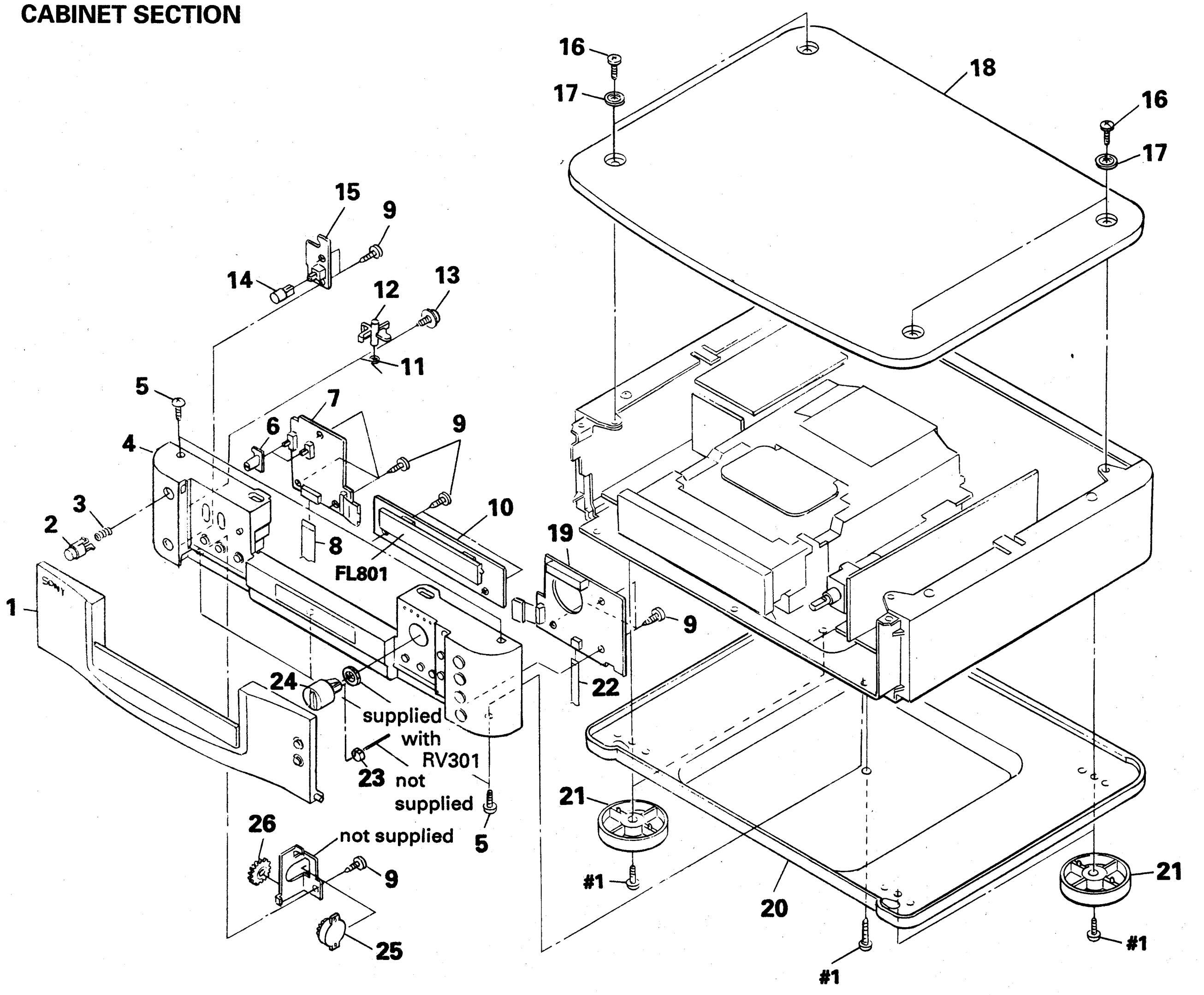
SECTION 5
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB,BALANCE(WHITE)...(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(# mark) list is given in the last of this parts list.
- G : Germany Model

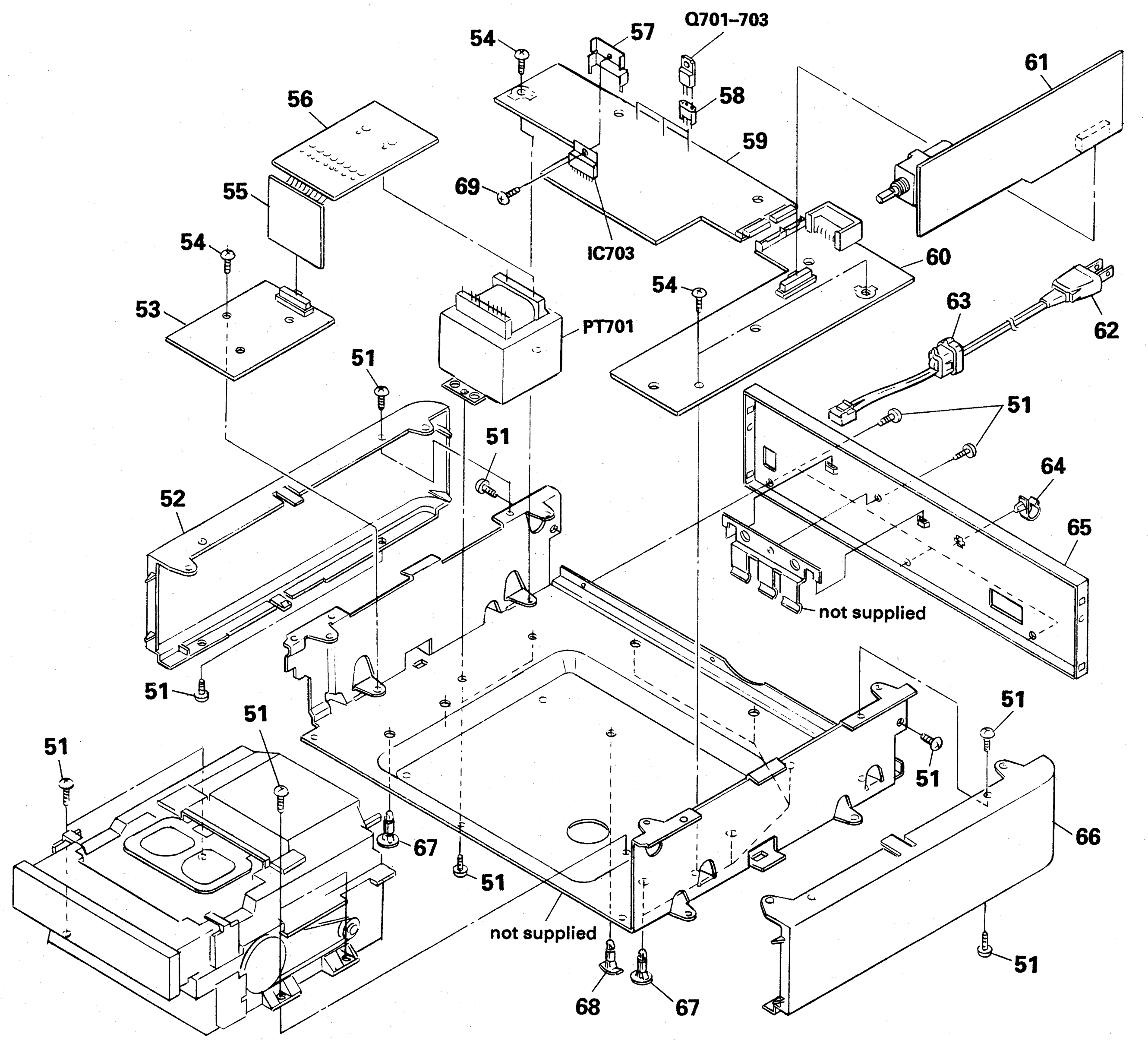
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET SECTION



Ref. No.	Part No.	Description	Remarks
1	X-3363-779-1	LID (TC) ASSY	
2	4-948-111-01	BUTTON (OPEN)	
3	4-948-750-01	SPRING, COMPRESSION	
4	X-3365-167-1	PANEL ASSY, FRONT	
5	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
6	3-373-512-01	KNOB (SLIDE)	
* 7	1-641-957-11	CONTROL SW (A) BOARD	
8	1-590-036-11	WIRE, FLAT TYPE (13 CORE)	
9	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
* 10	1-641-954-11	INDICATOR BOARD	
11	3-377-152-01	SPRING, TORSION	
12	4-948-110-01	HOOK	
13	4-933-134-01	SCREW (+PTPWH M2.6X6)	
14	3-373-515-01	BUTTON (POWER)	
* 15	1-641-959-11	POWER SW BOARD	
16	7-682-549-04	SCREW (M3X10), S TITE, + BTT	
17	4-928-025-51	ESCUTCHEON (TOP)	
* 18	4-948-022-01	COVER (UPPER)	
* 19	1-641-958-11	CONTROL SW (B) BOARD	
* 20	3-373-501-01	COVER (BOTTOM) (TC)	
21	4-948-027-01	FOOT (DIA. 50)	
22	1-575-666-11	WIRE, FLAT TYPE (5 CORE)	
23	4-922-978-01	HOLDER (FIBER)	
24	3-373-511-01	KNOB (REC)	
25	3-712-786-31	DAMPER, OIL	
26	4-948-109-01	GEAR	

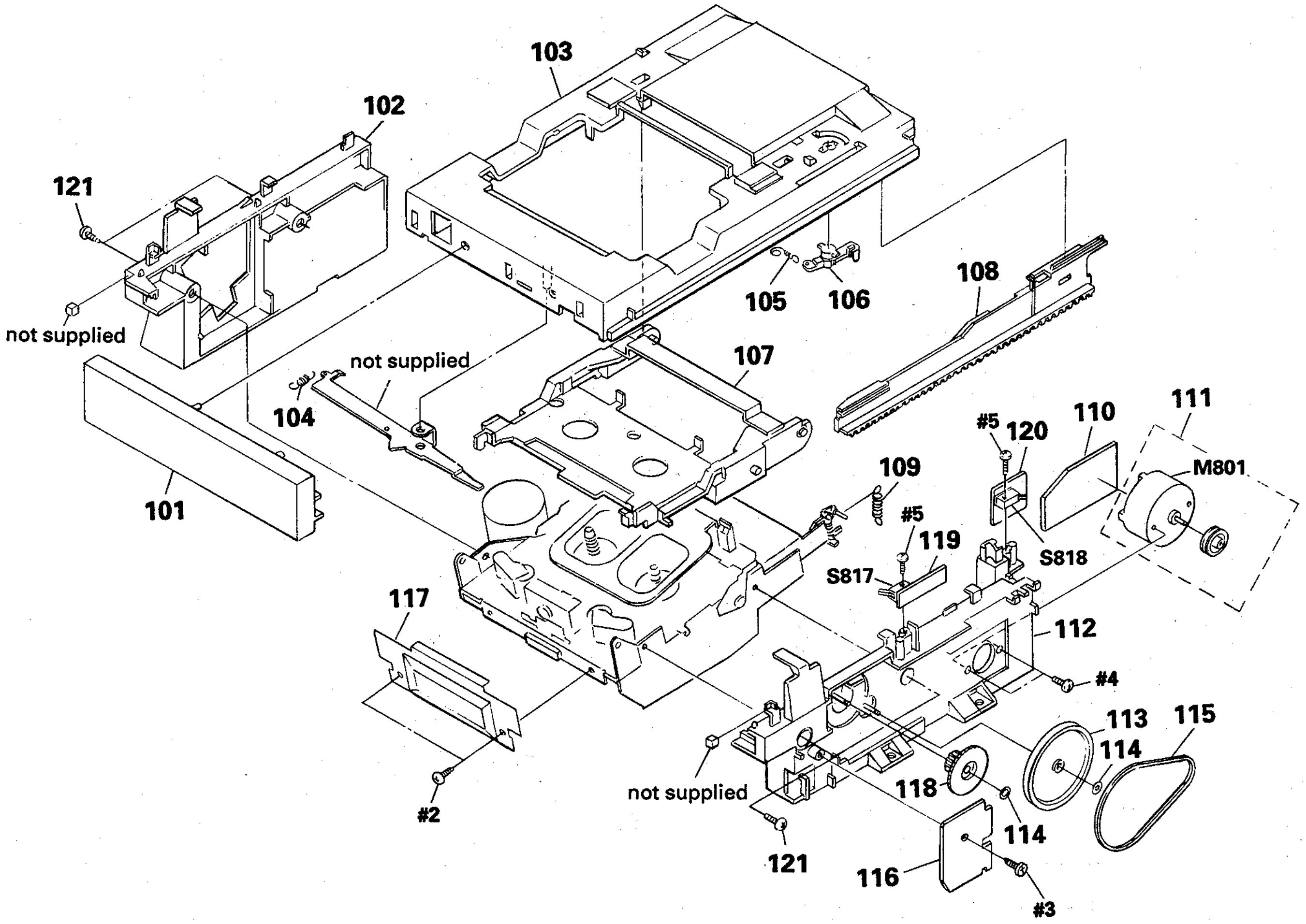
5-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks
51	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
52	4-948-019-01	PLATE (A) (L), SIDE	
* 53	A-2006-657-A	POWER BOARD, COMPLETE	
54	3-375-584-11	SCREW (NATEC BVTT)(M3X8)	
* 55	1-641-960-11	TRANSFORMER (A) BOARD	
* 56	1-641-961-11	TRANSFORMER (B) BOARD	
* 57	3-356-925-01	HEAT SINK	
* 58	1-562-327-00	CONNECTOR SOCKET 3P	
* 59	A-2006-656-A	SYSTEM CONTROL BOARD, COMPLETE (E)	
* 59	A-2006-808-A	SYSTEM CONTROL BOARD, COMPLETE (AEP, G)	
* 60	A-2006-655-A	AUDIO BOARD, COMPLETE (E)	
* 60	A-2006-807-A	AUDIO BOARD, COMPLETE (AEP, G)	
* 61	A-2006-658-A	REC VOL BOARD, COMPLETE (E)	
* 61	A-2006-809-A	REC VOL BOARD, COMPLETE (AEP, G)	
⚠62	1-575-651-11	CORD, POWER (AEP, G)	
⚠62	1-575-656-11	CORD, POWER (E)	
63	3-703-244-11	BUSHING (2104), CORD (AEP, G)	
63	3-703-571-00	BUSHING (S) (4516), CORD (E)	
* 64	4-949-235-01	HOOK	
* 65	4-947-629-21	PANEL, BACK (AEP)	
* 65	4-947-629-31	PANEL, BACK (G)	
* 65	4-947-629-51	PANEL, BACK (E:120V)	
* 65	4-947-629-61	PANEL, BACK (E:220-230V)	
66	4-948-020-01	PLATE (A) (R), SIDE	
* 67	3-704-198-21	SUPPORT, PC	
* 68	4-912-181-41	SUPPORT, PC	
69	3-375-580-01	SCREW (NATEC BVTT) (M3X6)	
⚠PT701	1-450-939-11	TRANSFORMER, POWER (E:120V)	
⚠PT701	1-450-940-11	TRANSFORMER, POWER (AEP, G, E:220-230V)	

5-3. MECHANISM SECTION 1

(TCM-200R31 : E Model
TCM-200R32 : AEP, Germany Model)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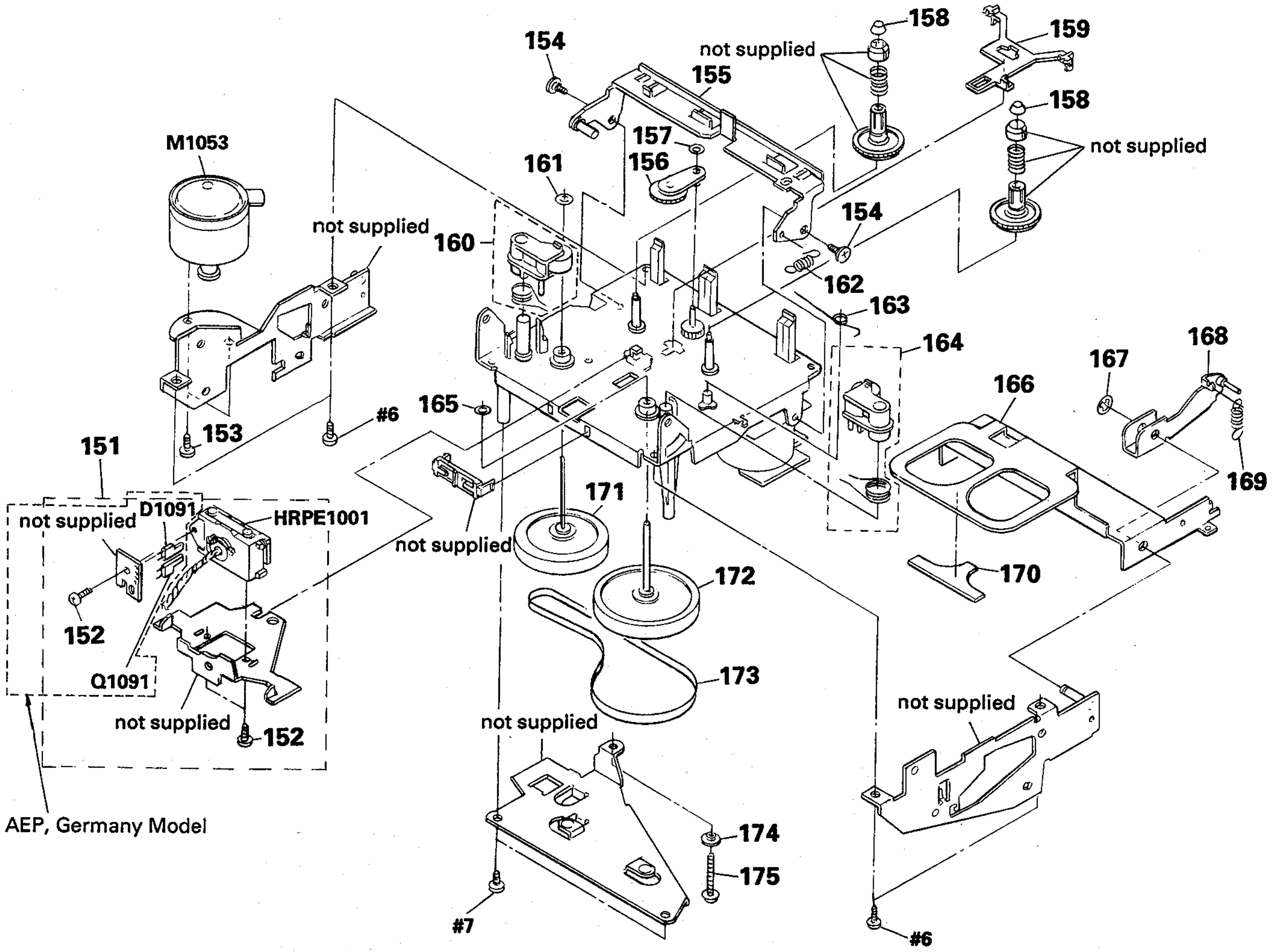
111
110
#5
120
M801
109
#5
119
S818
S817
117
112
#4
113
115
114
118
not supplied
114
#2
121
116
#3

Ref. No.	Part No.	Description	Remarks
101	X-3363-781-1	PANEL ASSY, LOADING (E)	
101	X-3365-168-1	PANEL ASSY, LOADING (AEP, G)	
102	3-371-615-01	GUIDE (L)	
103	3-371-623-01	TRAY	
104	3-371-628-01	SPRING (RETAINER), TENSION	
105	3-371-629-01	SPRING (LOCK LEVER), TENSION	
106	3-371-626-01	LEVER (LOCK)	
107	3-371-624-01	RETAINER	
108	3-371-625-01	RACK	
109	3-371-618-01	SPRING (STABILIZER), TENSION	
* 110	1-641-962-11	LOADING BOARD	
111	A-2003-960-A	MOTOR (LOADING) ASSY	
112	X-3363-556-1	GUIDE (R) ASSY	
113	3-371-616-01	PULLEY (MIDWAY)	
114	3-669-465-00	WASHER (1.5), STOPPER	
115	3-371-620-01	BELT (LOADING)	
* 116	1-641-825-11	HEAD TRANSLATION BOARD	
117	3-373-514-01	PLATE, SHIELD	
118	3-371-617-01	GEAR (DRIVING)	
* 119	1-641-964-11	SW (B) BOARD	
* 120	1-641-963-11	SW (A) BOARD	
121	3-375-580-01	SCREW (NATEC BVTT)(M3X6)	
M801	1-541-632-11	MOTOR, DC (LOADING)	
S817	1-572-143-11	SWITCH, SLIDE (OPEN DET)	
S818	1-572-143-11	SWITCH, SLIDE (CLOSE DET)	

5-4. MECHANISM SECTION 2

(TCM-200R31 : E Model
TCM-200R32 : AEP, Germany Model)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M1053
157
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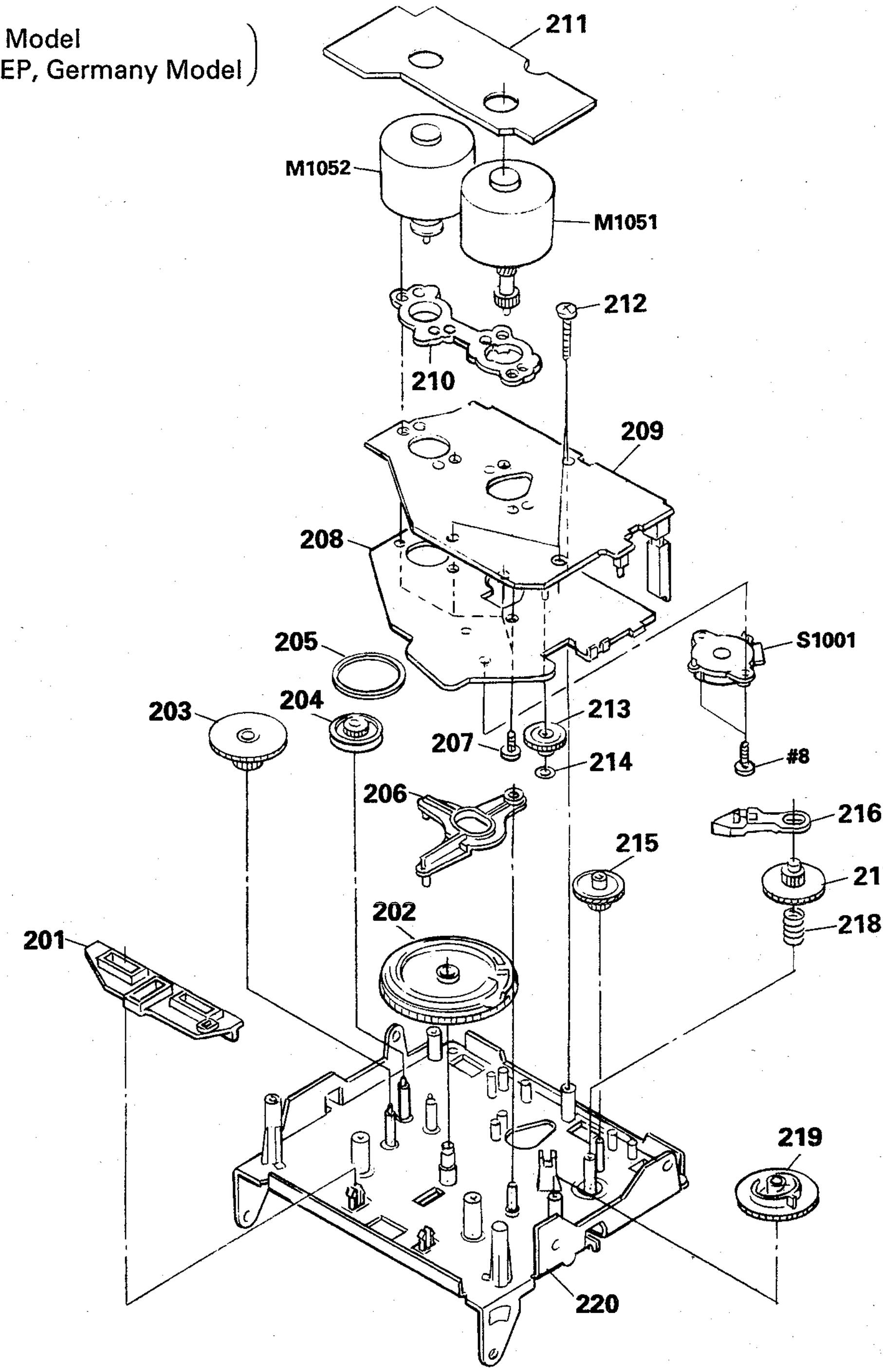
161
154
not supplied
160
162
163
164
168
167
166
165
#6
153
151
169
171
D1091
HRPE1001
not supplied
not supplied
170
172
152
173
Q1091
not supplied
152
not supplied
not supplied
AEP, Germany Model
174
175
#7
#6

Ref. No.	Part No.	Description	Remarks
151	A-2003-981-A	BASE (R31) ASSY, HEAD (E)	
151	A-2004-102-C	DECK (R32) ASSY, HEAD (AEP, G)	
152	3-356-716-01	SCREW (2X4) (B TIGHT), +P (AEP, G)	
153	4-885-599-00	SCREW, FITTING, REINFORCEMENT	
154	3-371-631-01	SCREW (LIFTER), STEP	
* 155	X-3363-542-1	LEVER (LIFTER) ASSY	
156	X-3356-641-1	LEVER (FR2) ASSY	
157	3-669-465-11	WASHER (1.5), STOPPER	
158	3-362-308-01	CAP (REEL)	
159	3-356-614-01	SLIDER (BRAKE)	
160	X-3343-456-1	LEVER (PINCH R) ASSY	
161	3-356-714-01	WASHER	
162	3-356-625-01	SPRING, TENSION	
163	3-377-152-01	SPRING (B), TORSION	
164	X-3343-455-1	LEVER (PINCH F) ASSY	
165	3-356-713-01	WASHER	
* 166	3-371-621-01	LEVER (HALF RETAINER)	
167	3-696-510-01	WASHER (3), STOPPER	
* 168	X-3363-554-1	LEVER (LIMITER) ASSY	
169	3-371-619-01	SPRING (LIMITER), TENSION	
170	3-371-622-01	CUSHION	
171	X-3356-643-1	FLYWHEEL (R REV) ASSY	
172	X-3356-642-1	FLYWHEEL (R FWD) ASSY	
173	3-374-109-01	BELT (CAPSTAN)	
* 174	3-356-718-01	SPACER (THRUST RETAINER R)	
175	3-356-707-01	SCREW (+PTPWH 2X25)	
D1091	8-719-950-74	LED SLR314B-BE (AEP, G)	
M1053	X-3363-546-1	MOTOR (CAPSTAN V30) ASSY	
Q1091	8-729-809-43	TRANSISTOR SPS-314D-B (AEP, G)	

5-5. MECHANISM SECTION 3

(TCM-200R31 : E Model
TCM-200R32 : AEP, Germany Model)



Ref. No.	Part No.	Description	Remarks
201	3-356-612-01	SLIDER (REVERSE)	
202	3-356-615-01	GEAR (MODE CAM RR)	
203	3-356-606-01	GEAR (MODE)	
204	3-356-607-01	PULLEY (MODE)	
205	3-356-603-01	BELT (MODE)	
206	3-356-613-01	LEVER (MODE)	
207	3-363-804-01	SCREW (+P 2.6X6.5)	
* 208	X-3356-616-1	BRACKET (MOTOR D) ASSY	
* 209	1-632-740-11	MD BOARD	
* 210	3-356-628-01	SPACER (MOTOR)	
* 211	1-632-741-11	REEL MOTOR BOARD	
212	3-355-801-01	SCREW (BTP 2X18)	
213	3-356-702-01	GEAR (COMMUNICATION B)	
214	3-669-465-11	WASHER (1.5), STOPPER	
215	3-356-703-01	GEAR (COMMUNICATION C)	
216	3-356-617-01	LEVER (SELECTION)	
217	3-356-609-01	GEAR (LOADING)	
218	3-356-605-01	SPRING, COMPRESSION	
219	3-356-616-01	GEAR (LOADING CAM)	
220	X-3364-584-2	CHASSIS ASSY, MECHANICAL (E)	
220	X-3363-365-3	CHASSIS ASSY, MECHANICAL (AEP, G)	
M1051	X-3356-638-1	MOTOR (REEL R) ASSY	
M1052	X-3356-604-1	MOTOR (ASSIST) ASSY	
S1001	1-466-525-11	ENCODER, ROTARY	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- G : Germany model

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- –XX, –X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

HEAD TRANSLATION | MD | REEL MOTOR | POWER

Ref. No.	Part No.	Description	Remarks
*	1-641-825-11	HEAD TRANSLATION BOARD	
		**********************	
		< CONNECTOR >	
* CN1091	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
* CN1092	1-564-509-11	PLUG, CONNECTOR 6P	
* CN1093	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P	
* CN1094	1-564-506-11	PLUG, CONNECTOR 3P	
**			
*	1-632-740-11	MD BOARD	
		********	
	3-356-631-01	HOLDER (SENSOR)	
		< CONNECTOR >	
CN1001	1-506-615-11	PIN, CONNECTOR 9P	
* CN1002	1-564-502-11	PIN, CONNECTOR 10P	
		< IC >	
IC1001	8-749-920-97	DIODE GP2S22B	
IC1002	8-749-920-97	DIODE GP2S22B	
		< RESISTOR >	
R1001	1-249-407-11	CARBON 150 5% 1/4W	
R1002	1-249-407-11	CARBON 150 5% 1/4W	
		< SWITCH >	
S1003	1-571-958-11	SWITCH, PUSH (1 KEY) (CLOSE)	
S1004	1-572-126-11	SWITCH, PUSH (1 KEY) (OPEN)	
S1005	1-572-125-11	SWITCH, LEAF (FWD)	
S1006	1-572-202-11	SWITCH, LEAF (HALF)	
S1007	1-572-125-11	SWITCH, LEAF (METAL)	
S1008	1-572-125-11	SWITCH, LEAF (70uS)	
S1009	1-572-125-11	SWITCH, LEAF (REV TAB)	
		< TERMINAL >	
* TB1001	1-694-018-11	TERMINAL (5P)	
**			
*	1-632-741-11	REEL MOTOR BOARD	
		****************	
		< CAPACITOR >	
C1051	1-124-907-11	ELECT 10uF 20% 50V	
C1052	1-124-907-11	ELECT 10uF 20% 50V	
C1053	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >	
* CN1051	1-564-499-11	PIN, CONNECTOR 6P	
* CN1052	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P	
**			
*	A-2006-657-A	POWER BOARD, COMPLETE	
		********************	
		< CAPACITOR >	
C708	1-124-587-11	ELECT 220uF 20% 6.3V	
C709	1-124-556-11	ELECT 2200uF 20% 16V	
C750	1-126-161-11	ELECT 2.2uF 20% 50V	
C751	1-126-162-11	ELECT 3.3uF 20% 50V	
C752	1-126-059-11	ELECT 10uF 20% 50V	
C754	1-124-122-11	ELECT 100uF 20% 50V	
C756	1-124-564-11	ELECT 4700uF 20% 25V	
		< CONNECTOR >	
* CN751	1-564-339-00	PIN, CONNECTOR 5P	
* CN754	1-569-496-11	SOCKET, CONNECTOR 10P	
* CN755	1-568-832-11	SOCKET, CONNECTOR 13P	
		< DIODE >	

POWER CONTROL SW(A) CONTROL SW(B)

Ref. No.	Part No.	Description	Remarks
D750	8-719-987-63	DIODE 1N4148M	
D751	8-719-987-63	DIODE 1N4148M	
D752	8-719-000-54	DIODE UZL-6L3	
D753	8-719-987-63	DIODE 1N4148M	
D754	8-719-933-33	DIODE HZS6A1L	
D755	8-719-200-77	DIODE 10E2N	
D757	8-719-200-77	DIODE 10E2N	
D758	8-719-312-09	DIODE RBA-402	
		< TRANSISTOR >	
Q705	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q706	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q750	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q754	8-729-118-01	TRANSISTOR 2SB1116-K	
		< RESISTOR >	
R711	1-249-420-11	CARBON 1.8K 5% 1/4W	
R750	1-249-429-11	CARBON 10K 5% 1/4W	
⚠FR751	1-219-136-11	FUSIBLE 0.22 10% 1/4W	
R751	1-249-422-11	CARBON 2.7K 5% 1/4W	
R752	1-249-436-11	CARBON 39K 5% 1/4W	
R753	1-249-429-11	CARBON 10K 5% 1/4W	
R754	1-249-429-11	CARBON 10K 5% 1/4W	

****

Ref. No.	Part No.	Description	Remarks
*	1-641-957-11	CONTROL SW (A) BOARD *******************	
		< CONNECTOR >	
* CN801	1-568-856-11	SOCKET, CONNECTOR 13P	
* CN802	1-691-409-11	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D801	8-719-301-37	LED SEL2210S-CD (SAF)	
		< RESISTOR >	
R801	1-249-409-11	CARBON 220 5% 1/4W	
R802	1-249-415-11	CARBON 680 5% 1/4W	
R803	1-249-412-11	CARBON 390 5% 1/4W	
R804	1-249-423-11	CARBON 3.3K 5% 1/4W	
R805	1-249-424-11	CARBON 3.9K 5% 1/4W	
R806	1-249-428-11	CARBON 8.2K 5% 1/4W	
R827	1-249-411-11	CARBON 330 5% 1/4W	
		< SWITCH >	
S801	1-572-378-11	SWITCH, SLIDE (DIRECTION MODE)	
S802	1-572-378-11	SWITCH, SLIDE (DOLBY)	
S803	1-554-303-21	SWITCH, TACTILE (SAF)	
S804	1-554-303-21	SWITCH, TACTILE (CD SYNCHRO)	
S805	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S806	1-554-303-21	SWITCH, TACTILE (RESET)	

****

Ref. No.	Part No.	Description	Remarks
*	1-641-958-11	CONTROL SW (B) BOARD *******************	
		< CONNECTOR >	
* CN803	1-691-408-11	CONNECTOR, BOARD TO BOARD 7P	
* CN804	1-568-848-11	SOCKET, CONNECTOR 5P	
		< DIODE >	
D802	8-719-301-39	LED SEL2210S-D (-10)	
D803	8-719-301-39	LED SEL2210S-D (-5)	
D804	8-719-301-39	LED SEL2210S-D (0)	
D805	8-719-301-39	LED SEL2210S-D (+3)	
D806	8-719-301-39	LED SEL2210S-D (+6)	
D807	8-719-301-49	LED SEL2810A (▷)	
D808	8-719-301-49	LED SEL2810A (◁)	
		< RESISTOR >	
R807	1-249-411-11	CARBON 330 5% 1/4W	
R808	1-249-411-11	CARBON 330 5% 1/4W	
R809	1-249-411-11	CARBON 330 5% 1/4W	
R810	1-249-411-11	CARBON 330 5% 1/4W	
R811	1-249-411-11	CARBON 330 5% 1/4W	
R812	1-249-409-11	CARBON 220 5% 1/4W	
R813	1-249-409-11	CARBON 220 5% 1/4W	
R814	1-249-412-11	CARBON 390 5% 1/4W	
R815	1-249-412-11	CARBON 390 5% 1/4W	
R816	1-249-415-11	CARBON 680 5% 1/4W	
R817	1-249-418-11	CARBON 1.2K 5% 1/4W	
R818	1-249-415-11	CARBON 680 5% 1/4W	
R819	1-249-411-11	CARBON 330 5% 1/4W	
R820	1-249-411-11	CARBON 330 5% 1/4W	
		< SWITCH >	
S807	1-554-303-21	SWITCH, TACTILE (⏏)	
S808	1-554-303-21	SWITCH, TACTILE (▷)	
S809	1-554-303-21	SWITCH, TACTILE (◁)	
S810	1-554-303-21	SWITCH, TACTILE (□)	
S811	1-554-303-21	SWITCH, TACTILE (▶▶)	
S812	1-554-303-21	SWITCH, TACTILE (◀◀)	
S813	1-554-303-21	SWITCH, TACTILE (REC)	
S814	1-554-303-21	SWITCH, TACTILE (MUTE)	
S815	1-554-303-21	SWITCH, TACTILE (PAUSE)	

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

POWER SW TRANSFORMER(A) TRANSFORMER(B) LOADING SW(A) SW(B) AUDIO

Ref.No.	Part No.	Description	Remarks
*	1-641-959-11	POWER SW BOARD	
		**************	
		< SWITCH >	
S816	1-554-118-00	SWITCH, PUSH (1 KEY) (POWER)	
***			
*	1-641-960-11	TRANSFORMER (A) BOARD	
		*********************	
		< CONNECTOR >	
* CN701	1-569-505-11	PIN, CONNECTOR 10P	
		< DIODE >	
D701	8-719-200-77	DIODE 10E2N	
D702	8-719-200-77	DIODE 10E2N	
D703	8-719-200-77	DIODE 10E2N	
D704	8-719-200-77	DIODE 10E2N	
***			
*	1-641-961-11	TRANSFORMER (B) BOARD	
		*********************	
		< CONNECTOR >	
* CN702	1-564-321-00	PIN, CONNECTOR 2P	
***			
*	1-641-962-11	LOADING BOARD	
		*************	
***			
*	1-641-963-11	SW (A) BOARD	
		************	
		< SWITCH >	
S817	1-572-143-11	SWITCH, SLIDE (OPEN DET)	
***			
*	1-641-964-11	SW (B) BOARD	
		************	
*	3-373-516-01	HOLDER, LED	
		< SWITCH >	
S818	1-572-143-11	SWITCH, SLIDE (CLOSE DET)	
***			
*	A-2006-655-A	AUDIO BOARD, COMPLETE (E)	
*	A-2006-807-A	AUDIO BOARD, COMPLETE (AEP,G)	
		*********************	
*	1-691-004-21	PLUG, CONNECTOR (PC BOARD) 13P	

Ref.No.	Part No.	Description			Remarks
		< CAPACITOR >			
C101	1-130-471-00	MYLAR	0.001uF	5%	50V
C102	1-136-157-00	FILM	0.022uF	5%	50V
C103	1-124-282-00	ELECT	22uF	20%	25V
C105	1-136-158-00	FILM	0.027uF	5%	50V
C114	1-126-300-11	ELECT	0.47uF	20%	50V
C115	1-126-163-11	ELECT	4.7uF	20%	50V
C116	1-126-163-11	ELECT	4.7uF	20%	50V
C117	1-126-161-11	ELECT	2.2uF	20%	50V
C118	1-162-285-31	CERAMIC	180PF	10%	50V
C119	1-136-935-11	FILM	22PF	5%	630V
C120	1-162-291-31	CERAMIC	560PF	10%	50V
C121	1-136-433-11	FILM	100PF	5%	630V
C122	1-136-272-00	FILM	68PF	5%	630V
C123	1-136-153-00	FILM	0.01uF	5%	50V
C124	1-136-165-00	FILM	0.1uF	5%	50V
C125	1-136-157-00	FILM	0.022uF	5%	50V
C201	1-130-471-00	MYLAR	0.001uF	5%	50V
C202	1-136-157-00	FILM	0.022uF	5%	50V
C203	1-124-282-00	ELECT	22uF	20%	25V
C205	1-136-158-00	FILM	0.027uF	5%	50V
C214	1-126-300-11	ELECT	0.47uF	20%	50V
C215	1-126-163-11	ELECT	4.7uF	20%	50V
C216	1-126-163-11	ELECT	4.7uF	20%	50V
C217	1-126-161-11	ELECT	2.2uF	20%	50V
C218	1-162-285-31	CERAMIC	180PF	10%	50V
C219	1-136-935-11	FILM	22PF	5%	630V
C220	1-162-291-31	CERAMIC	560PF	10%	50V
C221	1-136-433-11	FILM	100PF	5%	630V
C222	1-136-272-00	FILM	68PF	5%	630V
C223	1-136-153-00	FILM	0.01uF	5%	50V
C224	1-136-165-00	FILM	0.1uF	5%	50V
C225	1-136-157-00	FILM	0.022uF	5%	50V
C301	1-124-994-11	ELECT	100uF	20%	10V
C302	1-124-994-11	ELECT	100uF	20%	10V
C306	1-126-161-11	ELECT	2.2uF	20%	50V
C311	1-161-494-00	CERAMIC	0.022uF		25V
C312	1-162-215-31	CERAMIC	47PF	5%	50V
C313	1-162-286-31	CERAMIC	220PF	10%	50V
C314	1-126-300-11	ELECT	0.47uF	20%	50V
C315	1-126-161-11	ELECT	2.2uF	20%	50V
C316	1-130-481-00	MYLAR	0.0068uF	5%	50V
C317	1-130-475-00	MYLAR	0.0022uF	5%	50V
C318	1-130-475-00	MYLAR	0.0022uF	5%	50V
C319	1-126-059-11	ELECT	10uF	20%	50V
C321	1-136-558-11	FILM	0.0039uF	5%	630V
C322	1-107-046-00	MICA	4.7PF		500V
C323	1-126-300-11	ELECT	0.47uF	20%	50V
C324	1-124-910-11	ELECT	47uF	20%	50V

When indicating parts by reference number, please include the board name.

AUDIO

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN303	1-569-497-11	SOCKET, CONNECTOR 11P	
CN805	1-568-669-11	CONNECTOR, BOARD TO BOARD 8P	
CN806	1-568-669-11	CONNECTOR, BOARD TO BOARD 8P	
		< DIODE >	
D101	8-719-987-63	DIODE 1N4148M	
D201	8-719-987-63	DIODE 1N4148M	
D305	8-719-987-63	DIODE 1N4148M	
D306	8-719-987-63	DIODE 1N4148M	
		< IC >	
IC301	8-759-111-44	IC uPC4570C-1	
IC302	8-759-000-48	IC MC14052BCP	
IC303	8-752-060-64	IC CXA1198AP	
IC304	8-759-634-51	IC M5218AP	
IC305	8-759-634-51	IC M5218AP	
IC306	8-759-106-56	IC uPC1297CA	
		< COIL >	
L101	1-410-780-11	INDUCTOR 27mH	
L201	1-410-780-11	INDUCTOR 27mH	
L301	1-408-080-00	INDUCTOR 100uH	
		< TRANSISTOR >	
Q101	8-729-900-89	TRANSISTOR DTC144ES	
Q102	8-729-900-74	TRANSISTOR DTC143TS	
Q103	8-729-821-31	TRANSISTOR 2SD1012-FG	
Q201	8-729-900-89	TRANSISTOR DTC144ES	
Q202	8-729-900-74	TRANSISTOR DTC143TS	
Q203	8-729-821-31	TRANSISTOR 2SD1012-FG	
Q301	8-729-900-65	TRANSISTOR DTA144ES	
Q306	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q307	8-729-900-65	TRANSISTOR DTA144ES	
Q311	8-729-900-61	TRANSISTOR DTA114ES	
Q314	8-729-900-80	TRANSISTOR DTC114ES	
Q315	8-729-900-61	TRANSISTOR DTA114ES	
Q316	8-729-194-57	TRANSISTOR 2SC945-P	
Q317	8-729-194-57	TRANSISTOR 2SC945-P	
Q318	8-729-900-61	TRANSISTOR DTA114ES	
Q319	8-729-900-80	TRANSISTOR DTC114ES	
		< RESISTOR >	
R101	1-249-435-11	CARBON 33K 5% 1/4W	
R102	1-249-404-00	CARBON 82 5% 1/4W	
R103	1-247-882-11	CARBON 130K 5% 1/4W	
R104	1-249-426-11	CARBON 5.6K 5% 1/4W	
R105	1-249-420-11	CARBON 1.8K 5% 1/4W	
R106	1-247-840-00	CARBON 2.4K 5% 1/4W	
R107	1-247-887-00	CARBON 220K 5% 1/4W	
R115	1-249-421-11	CARBON 2.2K 5% 1/4W	
R116	1-249-431-11	CARBON 15K 5% 1/4W	
R117	1-249-417-11	CARBON 1K 5% 1/4W	
R118	1-249-429-11	CARBON 10K 5% 1/4W	
R119	1-249-425-11	CARBON 4.7K 5% 1/4W	
R120	1-249-421-11	CARBON 2.2K 5% 1/4W	
R121	1-249-429-11	CARBON 10K 5% 1/4W	
R122	1-249-425-11	CARBON 4.7K 5% 1/4W	
R124	1-249-434-11	CARBON 27K 5% 1/4W	
R125	1-249-436-11	CARBON 39K 5% 1/4W	
R126	1-247-868-11	CARBON 36K 5% 1/4W	
R127	1-249-408-11	CARBON 180 5% 1/4W	
R128	1-249-428-11	CARBON 8.2K 5% 1/4W	
R129	1-247-883-00	CARBON 150K 5% 1/4W	
R130	1-249-393-11	CARBON 10 5% 1/4W	
R131	1-249-432-11	CARBON 18K 5% 1/4W	
R132	1-249-429-11	CARBON 10K 5% 1/4W	
R201	1-249-435-11	CARBON 33K 5% 1/4W	
R202	1-249-404-00	CARBON 82 5% 1/4W	
R203	1-247-882-11	CARBON 130K 5% 1/4W	
R204	1-249-426-11	CARBON 5.6K 5% 1/4W	
R205	1-249-420-11	CARBON 1.8K 5% 1/4W	
R206	1-247-840-00	CARBON 2.4K 5% 1/4W	
R207	1-247-887-00	CARBON 220K 5% 1/4W	
R215	1-249-421-11	CARBON 2.2K 5% 1/4W	
R216	1-249-431-11	CARBON 15K 5% 1/4W	
R217	1-249-417-11	CARBON 1K 5% 1/4W	
R218	1-249-429-11	CARBON 10K 5% 1/4W	
R219	1-249-425-11	CARBON 4.7K 5% 1/4W	
R220	1-249-421-11	CARBON 2.2K 5% 1/4W	
R221	1-249-429-11	CARBON 10K 5% 1/4W	
R222	1-249-425-11	CARBON 4.7K 5% 1/4W	
R224	1-249-434-11	CARBON 27K 5% 1/4W	
R225	1-249-436-11	CARBON 39K 5% 1/4W	
R226	1-247-868-11	CARBON 36K 5% 1/4W	
R227	1-249-408-11	CARBON 180 5% 1/4W	
R228	1-249-428-11	CARBON 8.2K 5% 1/4W	
R229	1-247-883-00	CARBON 150K 5% 1/4W	
R230	1-249-393-11	CARBON 10 5% 1/4W	
R231	1-249-432-11	CARBON 18K 5% 1/4W	
R232	1-249-429-11	CARBON 10K 5% 1/4W	
R301	1-249-409-11	CARBON 220 5% 1/4W	
R302	1-249-409-11	CARBON 220 5% 1/4W	
R304	1-249-436-11	CARBON 39K 5% 1/4W	
R305	1-249-436-11	CARBON 39K 5% 1/4W	
R306	1-247-881-00	CARBON 120K 5% 1/4W	
R307	1-247-885-00	CARBON 180K 5% 1/4W	
R308	1-249-436-11	CARBON 39K 5% 1/4W	
R309	1-249-440-11	CARBON 82K 5% 1/4W	

When indicating parts by reference number, please include the board name.

AUDIO

SYSTEM CONTROL

Ref. No.	Part No.	Description				Remarks
R310	1-247-874-11	CARBON	62K	5%	1/4W	
R311	1-247-872-11	CARBON	51K	5%	1/4W	
R312	1-247-887-00	CARBON	220K	5%	1/4W	
R313	1-247-885-00	CARBON	180K	5%	1/4W	
R314	1-249-436-11	CARBON	39K	5%	1/4W	
R315	1-247-893-11	CARBON	390K	5%	1/4W	
R316	1-249-438-11	CARBON	56K	5%	1/4W	
R317	1-247-872-11	CARBON	51K	5%	1/4W	
R318	1-249-440-11	CARBON	82K	5%	1/4W	
R319	1-249-441-11	CARBON	100K	5%	1/4W	
R320	1-247-872-11	CARBON	51K	5%	1/4W	
R321	1-247-887-00	CARBON	220K	5%	1/4W	
R322	1-249-433-11	CARBON	22K	5%	1/4W	
R326	1-249-425-11	CARBON	4.7K	5%	1/4W	
R327	1-247-887-00	CARBON	220K	5%	1/4W	
R328	1-249-429-11	CARBON	10K	5%	1/4W	
R329	1-249-441-11	CARBON	100K	5%	1/4W	
R330	1-249-428-11	CARBON	8.2K	5%	1/4W	
R331	1-249-423-11	CARBON	3.3K	5%	1/4W	
R332	1-249-417-11	CARBON	1K	5%	1/4W	
R333	1-249-441-11	CARBON	100K	5%	1/4W	
R334	1-249-441-11	CARBON	100K	5%	1/4W	
R335	1-247-850-11	CARBON	6.2K	5%	1/4W	
R336	1-247-838-00	CARBON	2K	5%	1/4W	
R337	1-249-421-11	CARBON	2.2K	5%	1/4W	
R340	1-249-437-11	CARBON	47K	5%	1/4W	
R341	1-249-437-11	CARBON	47K	5%	1/4W	
⚠R342	1-212-851-00	FUSIBLE	5.6	5%	1/4W	F
R345	1-247-864-11	CARBON	24K	5%	1/4W	
R350	1-249-425-11	CARBON	4.7K	5%	1/4W	
R351	1-249-425-11	CARBON	4.7K	5%	1/4W	
R352	1-249-429-11	CARBON	10K	5%	1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV101	1-238-597-11	RES, ADJ, CARBON 1K (PB LEVEL L)
RV102	1-238-600-11	RES, ADJ, CARBON 10K (REC LEVEL L)
RV103	1-238-601-11	RES, ADJ, CARBON 22K (REC BIAS L)
RV201	1-238-597-11	RES, ADJ, CARBON 1K (PB LEVEL R)
RV202	1-238-600-11	RES, ADJ, CARBON 10K (REC LEVEL R)
RV203	1-238-601-11	RES, ADJ, CARBON 22K (REC BIAS R)

< RELAY >

Ref. No.	Part No.	Description
RY301	1-515-726-11	RELAY

< TRANSFORMER >

Ref. No.	Part No.	Description
T101	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T201	1-433-335-11	TRANSFORMER, BIAS OSCILLATION
T301	1-433-336-11	TRANSFORMER, BIAS OSCILLATION

< TEST PIN >

Ref. No.	Part No.	Description	Remarks
* TP301	1-564-506-11	PLUG, CONNECTOR 3P	

****

Ref. No.	Part No.	Description	Remarks
*	A-2006-656-A	SYSTEM CONTROL BOARD, COMPLETE (E)	
*	A-2006-808-A	SYSTEM CONTROL BOARD, COMPLETE (AEP,G)	

****

Ref. No.	Part No.	Description	Remarks
*	1-562-327-00	SOCKET, CONNECTOR 3P	
*	3-356-925-01	HEAT SINK	
*	4-942-204-01	PLATE, GROUND	

< CAPACITOR >

Ref. No.	Part No.	Description				Remarks
C701	1-124-360-00	ELECT	1000uF	20%	16V	
C702	1-124-360-00	ELECT	1000uF	20%	16V	
C704	1-124-910-11	ELECT	47uF	20%	50V	
C705	1-124-994-11	ELECT	100uF	20%	10V	
C706	1-124-994-11	ELECT	100uF	20%	10V	
C710	1-126-301-11	ELECT	1uF	20%	50V	
C711	1-126-161-11	ELECT	2.2uF	20%	50V	
C712	1-126-024-11	ELECT	220uF	20%	16V	
C760	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C761	1-161-379-00	CERAMIC	0.01uF	20%	25V	
C762	1-126-163-11	ELECT	4.7uF	20%	50V	(AEP,G)
C763	1-124-910-11	ELECT	47uF	20%	50V	(AEP,G)
C765	1-126-161-11	ELECT	2.2uF	20%	50V	
C767	1-126-059-11	ELECT	10uF	20%	50V	
C776	1-164-159-11	CERAMIC	0.1uF		50V	
C777	1-164-159-11	CERAMIC	0.1uF		50V	
C778	1-164-159-11	CERAMIC	0.1uF		50V	
C779	1-124-604-00	ELECT	330uF	20%	10V	
C780	1-164-159-11	CERAMIC	0.1uF		50V	
C799	1-124-472-11	ELECT	470uF	20%	10V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
* CN756	1-564-340-00	PIN, CONNECTOR 6P	
* CN757	1-506-503-11	PIN, CONNECTOR 9P	
* CN758	1-564-666-11	PIN, CONNECTOR 10P	
* CN759	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P	
CN760	1-565-777-11	CONNECTOR, BOARD TO BOARD 8P	
CN761	1-565-777-11	CONNECTOR, BOARD TO BOARD 8P	
* CN762	1-506-503-61	PIN, CONNECTOR 9P	
* CN763	1-564-510-11	PLUG, CONNECTOR 7P	
* CN765	1-564-666-11	PIN, CONNECTOR 10P	

< DIODE >

Ref. No.	Part No.	Description		Remarks
D705	8-719-933-33	DIODE	HZS6A1L	
D706	8-719-933-33	DIODE	HZS6A1L	
D714	8-719-987-63	DIODE	1N4148M	
D720	8-719-987-63	DIODE	1N4148M	
D721	8-719-987-63	DIODE	1N4148M	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SYSTEM CONTROL

Ref. No.	Part No.	Description				Remarks
D760	8-719-987-63	DIODE	1N4148M (AEP, G)			
D761	8-719-987-63	DIODE	1N4148M			
D763	8-719-000-93	DIODE	UZL-7H1			
D765	8-719-987-63	DIODE	1N4148M			
D766	8-719-001-54	DIODE	UZL-11H2			
D767	8-719-987-63	DIODE	1N4148M			
D768	8-719-000-93	DIODE	UZL-7H1			
D769	8-719-987-63	DIODE	1N4148M			
		< IC >				
IC701	8-759-945-58	IC	RC4558P			
IC702	8-759-073-66	IC	M50944-130FP (AEP, G)			
IC702	8-759-047-34	IC	M50944-126FP (E)			
IC703	8-759-973-95	IC	BA6219B			
IC704	8-759-822-09	IC	LB1641			
IC705	8-759-822-09	IC	LB1641			
		< TRANSISTOR >				
Q701	8-729-141-83	TRANSISTOR	2SB1094-LK			
Q702	8-729-209-15	TRANSISTOR	2SD2012			
Q703	8-729-141-83	TRANSISTOR	2SB1094-LK			
Q704	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q705	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q706	8-729-900-80	TRANSISTOR	DTC114ES			
Q707	8-729-900-80	TRANSISTOR	DTC114ES			
Q725	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q760	8-729-900-80	TRANSISTOR	DTC114ES			
Q761	8-729-900-80	TRANSISTOR	DTC114ES			
Q762	8-729-801-84	TRANSISTOR	2SB1013-4			
Q763	8-729-900-80	TRANSISTOR	DTC114ES			
Q764	8-729-900-80	TRANSISTOR	DTC114ES			
Q765	8-729-900-80	TRANSISTOR	DTC114ES			
Q766	8-729-900-80	TRANSISTOR	DTC114ES			
Q767	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q768	8-729-620-05	TRANSISTOR	2SC2603-EF (AEP, G)			
Q769	8-729-620-05	TRANSISTOR	2SC2603-EF (AEP, G)			
		< RESISTOR >				
R701	1-249-417-11	CARBON	1K	5%	1/4W	
R702	1-249-427-11	CARBON	6.8K	5%	1/4W	
R703	1-249-419-11	CARBON	1.5K	5%	1/4W	
R704	1-249-429-11	CARBON	10K	5%	1/4W	
R705	1-249-419-11	CARBON	1.5K	5%	1/4W	
R706	1-249-427-11	CARBON	6.8K	5%	1/4W	
R707	1-249-427-11	CARBON	6.8K	5%	1/4W	
R708	1-249-405-11	CARBON	100	5%	1/4W	
R709	1-249-417-11	CARBON	1K	5%	1/4W	
R710	1-249-420-11	CARBON	1.8K	5%	1/4W	
R711	1-249-421-11	CARBON	2.2K	5%	1/4W	

Ref. No.	Part No.	Description				Remarks
R713	1-247-830-11	CARBON	910	5%	1/4W	
R714	1-249-419-11	CARBON	1.5K	5%	1/4W	
R715	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R716	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R717	1-249-425-11	CARBON	4.7K	5%	1/4W	
R718	1-249-425-11	CARBON	4.7K	5%	1/4W	
R719	1-249-411-11	CARBON	330	5%	1/4W	
R720	1-247-830-11	CARBON	910	5%	1/4W	
R721	1-249-418-11	CARBON	1.2K	5%	1/4W	
R722	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R723	1-212-950-00	FUSIBLE	4.7	5%	1/2W	F
R724	1-249-425-11	CARBON	4.7K	5%	1/4W	
R725	1-249-425-11	CARBON	4.7K	5%	1/4W	
R726	1-249-429-11	CARBON	10K	5%	1/4W	
R727	1-249-429-11	CARBON	10K	5%	1/4W	
R729	1-249-433-11	CARBON	22K	5%	1/4W	
R730	1-249-433-11	CARBON	22K	5%	1/4W	
R731	1-249-433-11	CARBON	22K	5%	1/4W	
R732	1-249-424-11	CARBON	3.9K	5%	1/4W	
R734	1-249-441-11	CARBON	100K	5%	1/4W	
R735	1-249-417-11	CARBON	1K	5%	1/4W	
R736	1-249-437-11	CARBON	47K	5%	1/4W	
R741	1-249-421-11	CARBON	2.2K	5%	1/4W	
R742	1-249-421-11	CARBON	2.2K	5%	1/4W	
R743	1-249-421-11	CARBON	2.2K	5%	1/4W	
R751	1-249-429-11	CARBON	10K	5%	1/4W	
R752	1-249-435-11	CARBON	33K	5%	1/4W	
R760	1-249-435-11	CARBON	33K	5%	1/4W	
R761	1-249-425-11	CARBON	4.7K	5%	1/4W	
R762	1-249-425-11	CARBON	4.7K	5%	1/4W	
R763	1-249-436-11	CARBON	39K	5%	1/4W	
R764	1-249-425-11	CARBON	4.7K	5%	1/4W	
R765	1-249-425-11	CARBON	4.7K	5%	1/4W	
R766	1-249-425-11	CARBON	4.7K	5%	1/4W	
R767	1-249-425-11	CARBON	4.7K	5%	1/4W	
R768	1-249-425-11	CARBON	4.7K	5%	1/4W	
R769	1-249-425-11	CARBON	4.7K	5%	1/4W	
R770	1-249-425-11	CARBON	4.7K	5%	1/4W	
R771	1-249-425-11	CARBON	4.7K	5%	1/4W	
R772	1-249-425-11	CARBON	4.7K	5%	1/4W	
R773	1-249-436-11	CARBON	39K	5%	1/4W	
R774	1-247-903-00	CARBON	1M	5%	1/4W	
R775	1-249-421-11	CARBON	2.2K	5%	1/4W	(AEP, G)
R776	1-249-410-11	CARBON	270	5%	1/4W	(AEP, G)
R777	1-249-433-11	CARBON	22K	5%	1/4W	(AEP, G)
R778	1-249-429-11	CARBON	10K	5%	1/4W	(AEP, G)
R779	1-249-429-11	CARBON	10K	5%	1/4W	(AEP, G)
R780	1-249-417-11	CARBON	1K	5%	1/4W	(AEP, G)
R781	1-249-421-11	CARBON	2.2K	5%	1/4W	
R782	1-249-433-11	CARBON	22K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remarks
R785	1-249-425-11	CARBON 4.7K 5% 1/4W	
R786	1-249-425-11	CARBON 4.7K 5% 1/4W	
R787	1-249-420-11	CARBON 1.8K 5% 1/4W	
R788	1-247-844-11	CARBON 3.6K 5% 1/4W	
⚠R789	1-212-950-00	FUSIBLE 4.7 5% 1/2W	F
R790	1-249-429-11	CARBON 10K 5% 1/4W	
R791	1-249-417-11	CARBON 1K 5% 1/4W	
R792	1-249-393-11	CARBON 10 5% 1/4W	
R793	1-249-433-11	CARBON 22K 5% 1/4W	
R794	1-249-420-11	CARBON 1.8K 5% 1/4W	
R795	1-249-433-11	CARBON 22K 5% 1/4W	
R796	1-249-413-11	CARBON 470 5% 1/4W	
R797	1-249-429-11	CARBON 10K 5% 1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV751	1-238-602-11	RES, ADJ, CARBON 47K (QUICK REVERSE)	(AEP,G)

< TEST PIN >

Ref. No.	Part No.	Description	Remarks
* TP701	1-564-505-11	PLUG, CONNECTOR 2P	
* TP702	1-564-505-11	PLUG, CONNECTOR 2P (AEP,G)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X701	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	

****

* A-2006-658-A REC VOL BOARD, COMPLETE (E)

* A-2006-809-A REC VOL BOARD, COMPLETE (AEP,G)

****

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C106	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C107	1-126-059-11	ELECT 10uF 20% 50V	
C108	1-126-233-11	ELECT 22uF 20% 50V	
C109	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C110	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C111	1-136-174-00	FILM 0.56uF 5% 50V	
C112	1-136-171-00	FILM 0.33uF 5% 50V	
C113	1-126-059-11	ELECT 10uF 20% 50V	
C206	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C207	1-126-059-11	ELECT 10uF 20% 50V	
C208	1-126-233-11	ELECT 22uF 20% 50V	
C209	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C210	1-130-475-00	MYLAR 0.0022uF 5% 50V	
C211	1-136-174-00	FILM 0.56uF 5% 50V	
C212	1-136-171-00	FILM 0.33uF 5% 50V	
C213	1-126-059-11	ELECT 10uF 20% 50V	
C303	1-126-101-11	ELECT 100uF 20% 16V	
C304	1-126-101-11	ELECT 100uF 20% 16V	
C345	1-126-301-11	ELECT 1uF 20% 50V	
C794	1-161-377-00	CERAMIC 0.0047uF 30% 16V	(AEP,G)
C808	1-164-159-11	CERAMIC 0.1uF 50V	
C809	1-164-159-11	CERAMIC 0.1uF 50V	
C810	1-164-159-11	CERAMIC 0.1uF 50V	
C820	1-164-159-11	CERAMIC 0.1uF 50V	
C821	1-164-159-11	CERAMIC 0.1uF 50V	
C822	1-164-159-11	CERAMIC 0.1uF 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
* CN311	1-569-506-11	PIN, CONNECTOR 11P	
* CN831	1-568-824-11	SOCKET, CONNECTOR 5P	
* CN834	1-564-506-11	PLUG, CONNECTOR 3P (AEP,G)	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-987-63	DIODE 1N4148M	
D803	8-719-987-63	DIODE 1N4148M	
D804	8-719-987-63	DIODE 1N4148M	

< IC >

Ref. No.	Part No.	Description	Remarks
IC311	8-752-059-55	IC CXA1331S	
IC806	8-759-822-09	IC LB1641	

< FILTER >

Ref. No.	Part No.	Description	Remarks
LPF101	1-236-087-11	FILTER, LOW PASS	
LPF201	1-236-087-11	FILTER, LOW PASS	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q320	8-729-900-65	TRANSISTOR DTA144ES	
Q815	8-729-900-80	TRANSISTOR DTC114ES	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R109	1-249-433-11	CARBON 22K 5% 1/4W	
R110	1-249-423-11	CARBON 3.3K 5% 1/4W	
R111	1-249-428-11	CARBON 8.2K 5% 1/4W	
R112	1-247-864-11	CARBON 24K 5% 1/4W	
R113	1-249-414-11	CARBON 560 5% 1/4W	
R209	1-249-433-11	CARBON 22K 5% 1/4W	
R210	1-249-423-11	CARBON 3.3K 5% 1/4W	
R211	1-249-428-11	CARBON 8.2K 5% 1/4W	
R212	1-247-864-11	CARBON 24K 5% 1/4W	
R213	1-249-414-11	CARBON 560 5% 1/4W	
R303	1-249-435-11	CARBON 33K 5% 1/4W	
R343	1-249-434-11	CARBON 27K 5% 1/4W	
R344	1-249-417-11	CARBON 1K 5% 1/4W	
R781	1-249-413-11	CARBON 470 5% 1/4W	(AEP,G)
R837	1-249-417-11	CARBON 1K 5% 1/4W	
⚠R838	1-212-950-00	FUSIBLE 4.7 5% 1/2W	F
R841	1-249-415-11	CARBON 680 5% 1/4W	

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

REC VOL INDICATOR

Ref. No.	Part No.	Description	Remarks
R842	1-249-420-11	CARBON 1.8K 5% 1/4W	
R843	1-249-410-11	CARBON 270 5% 1/4W	
R844	1-247-887-00	CARBON 220K 5% 1/4W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV301	1-241-753-11	RES, VER, CARBON 20KX3 (REC LEVEL)	

****

Ref. No.	Part No.	Description	Remarks
*	1-641-954-11	INDICATOR BOARD ***************	
*	3-373-845-01	HOLDER, FL TUBE	

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C801	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C802	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C803	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C804	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C805	1-164-159-11	CERAMIC 0.1uF 50V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
* CN807	1-691-406-11	CONNECTOR, BOARD TO BOARD 7P	
* CN808	1-691-407-11	CONNECTOR, BOARD TO BOARD 10P	

< FILTER >

Ref. No.	Part No.	Description	Remarks
FL801	1-519-702-11	INDICATOR TUBE, FLUORESCENT	

< IC >

Ref. No.	Part No.	Description	Remarks
IC801	8-759-047-57	IC HD614023FB31	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R821	1-247-903-00	CARBON 1M 5% 1/4W	
R822	1-249-405-11	CARBON 100 5% 1/4W	
R823	1-249-405-11	CARBON 100 5% 1/4W	
R824	1-249-405-11	CARBON 100 5% 1/4W	
R825	1-249-405-11	CARBON 100 5% 1/4W	
R826	1-249-433-11	CARBON 22K 5% 1/4W	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X801	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remarks
8	1-590-036-11	WIRE, FLAT TYPE (13 CORE)	
22	1-575-666-11	WIRE, FLAT TYPE (5 CORE)	
* 58	1-562-327-00	CONNECTOR SOCKET 3P	
⚠62	1-575-651-11	CORD, POWER (AEP,G)	
⚠62	1-575-656-11	CORD, POWER (E)	
M801	1-541-632-11	MOTOR, DC (LOADING)	
⚠PT701	1-450-939-11	TRANSFORMER, POWER (E:120V)	
⚠PT701	1-450-940-11	TRANSFORMER, POWER (AEP,G,E:220-230V)	
D1091	8-719-950-74	LED SLR314B-BE (AEP,G)	
Q1091	8-729-809-43	TRANSISTOR SPS-314D-B (AEP,G)	
S1001	1-466-525-11	ENCODER, ROTARY	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remarks
	1-693-133-11	REMOTE COMMANDER (RM-S1FA) (AEP,G)	
*	4-948-201-01	CUSHION	
*	4-952-537-11	INDIVIDUAL CARTON (AEP,G)	

****

HARDWARE LIST

Ref. No.	Part No.	Description
#1	7-682-551-09	SCREW +BVTT 3X14 (S)
#3	7-621-773-93	SCREW (PANEL 2.6 TP2)
#4	7-621-775-10	SCREW +B 2.6X4
#5	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT
#6	7-685-870-01	SCREW +BVTT 3X5 (S)
#7	7-685-131-19	SCREW +BTP 2.6X4 TYPE2 N-S
#8	7-621-255-35	SCREW +BVTT 2X5 (S)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

9-956-774-11

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Audio Group

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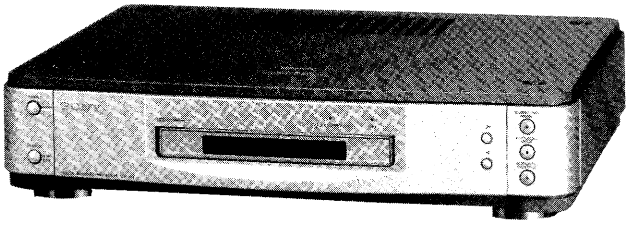
SDP-VF1

SERVICE MANUAL

E Model



This set is Digital Surround Processor in LBT-VF3.

SPECIFICATIONS

Continuous RMS power output	12 W + 12 W (8 ohms, at 1 kHz, 5% THD)
Peak music power output	100 W

INPUT	Jack type	Sensitivity	Impedance
VIDEO1	Phono	245 mV	47 kohms
VIDEO2	Phono	245 mV	47 kohms
VIDEO3	Phono	245 mV	47 kohms
BS	Phono	245 mV	47 kohms
LD	Phono	245 mV	47 kohms

OUTPUT	Jack type	Sensitivity	Impedance
VIDEO1	Phono	200 mV	2 kohms
VIDEO2	Phono	200 mV	2 kohms
SURROUND SPEAKER	Phono	Accept speaker of 8 to 16 ohms	

Video output (phono jack)	
VIDEO1, VIDEO2	1 Vp-p, 75 ohms unbalanced, sync negative
MONITOR, BS, LD	1 Vp-p, 75 ohms unbalanced, sync negative
Power requirement	220-230 V AC, 50/60 Hz (South-east Asian model) 120 V AC, 50/60 Hz (Latin American model)
Power consumption	30 W
AC outlet	1 unswitched, 100 W max.
Weight	Approx. 4.5 kg
Dimensions	Approx. 355 × 79.5 × 303 mm (w/h/d, including projections)

DIGITAL SURROUND PROCESSOR

SONY®

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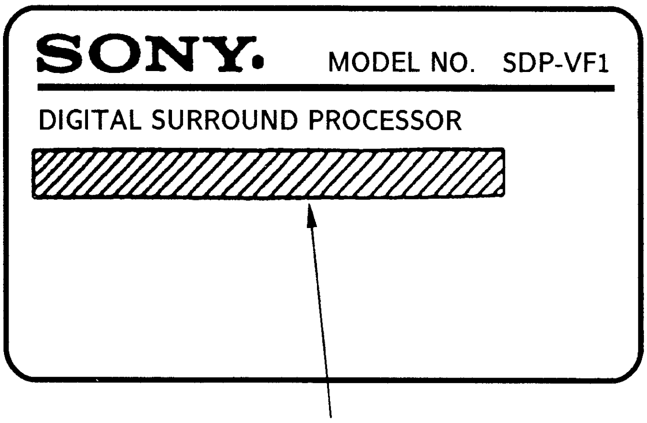
MODEL IDENTIFICATION

- Specification Label -



E(120V) Model : AC 120V ~ 30W 50/60Hz
E(220-230V) Model : AC 220 - 230V ~30W 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location of Controls

Digital Surround Processor (SDP-VF1)

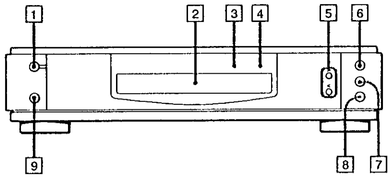
With the door closed (Fig. H)

1 OPEN button
2 Display
3 DOLBY SURROUND indicator
4 MIX indicator (128)
5 > and < buttons (106 – 128)
6 SURROUND MODE button and indicator (106, 110, 116, 126)
7 PRO LOGIC MODE button and indicator (106, 110, 116)
8 ACOUSTIC CONTROL button and indicator (108, 112, 120, 122, 124, 126)
9 POWER button (18)

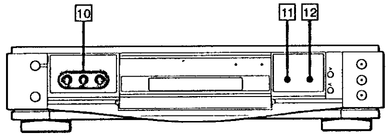
With the door opened (Fig. I)

10 VIDEO3 IN jacks (Phono jacks)
11 MIX button (128)
12 TEST TONE button (106, 108, 110, 112)

H



I

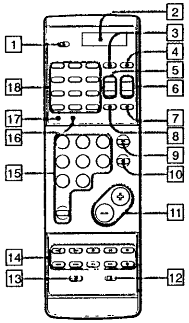


Location of Controls

Remote Commander (RM-S1FE) J

1 KEY MODE switch
2 Display
3 DISPLAY button (56)
4 SHIFT/TV/VTR button (24)
5 CHANNEL +/– buttons (24, 26, 28, 30)
6 TV VOLUME +/– buttons (86, 88)
7 SLEEP button (58)
8 CORDLESS SYSTEM button (84)
9 SYSTEM POWER button (18, 62)
10 VIDEO POWER button (86, 88)
11 VOLUME +/– buttons (20)
12 FUNCTION CODE switch (10)
13 BASS SYNTHESIZER button (22)
14 Operation button for the CD player, cassette deck, etc.
15 FUCTION buttons
16 RESET button (92)
17 MAKES button (92, 94)
18 Numeric and AMP/SURROUND CONTROL buttons

J



Connections

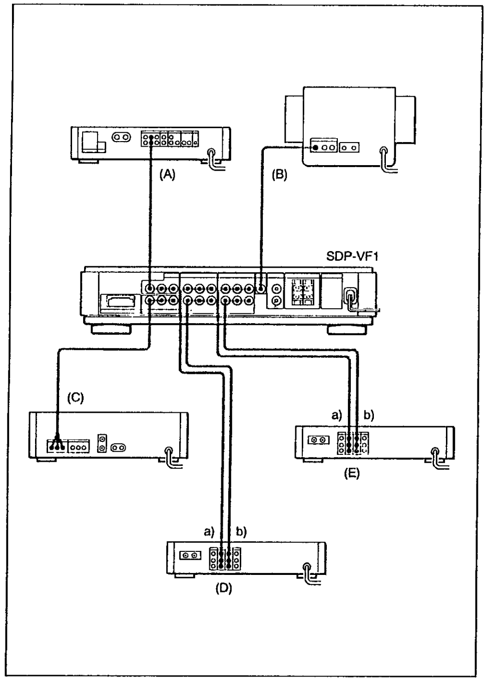
Turn all the power off before making any connections.

Notes on connections
- Connect the AC power cord last.
- Fully insert cable connections into jacks. Loose connections may cause hum or noise.

Connecting Other Equipment

The illustration shows the connections with equipment other than LBT-VF3.

(A) TV (or BS) tuner
  To the AUDIO/VIDEO OUT jacks
(B) Monitor TV
  To the VIDEO IN jack
(C) Laser disc player
  To the AUDIO/VIDEO OUT jacks
(D) Video deck 1
  a) To the AUDIO/VIDEO OUT jacks
  b) To the AUDIO/VIDEO IN jacks
(E) Video deck 2
  a) To the AUDIO/VIDEO OUT jacks
  b) To the AUDIO/VIDEO IN jacks



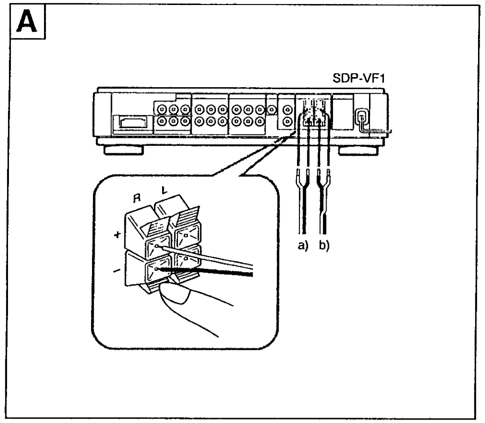
Connections

Connecting Rear Speakers [A]

Connect the right speaker to the R (right) speaker terminal and the left speaker to the L (left) speaker terminal.

a) Rear speaker (R)
b) Rear speaker (L)

Note
When you use cordless speakers as rear speakers, refer to page 84.



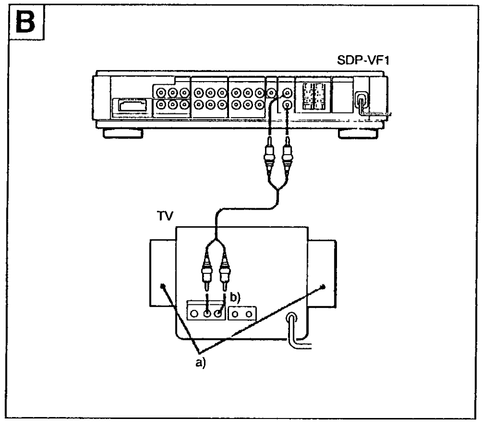
Connecting Center Speaker(s) [B]

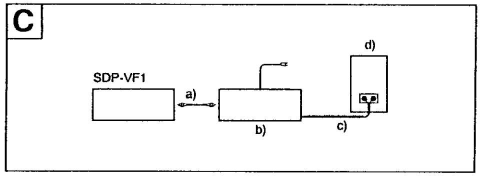
Using speakers of a TV as center speakers is recommended.

a) Center speakers (speakers of a monitor TV)
b) To the AUDIO IN jacks

You can also connect a power amplifier to the CENTER OUT jacks. (Fig. [C])

a) From the CENTER OUT jacks of the SDP-VF1 to the input jacks of the power amplifier
b) Power amplifier
c) To the speaker terminals
d) Center speaker





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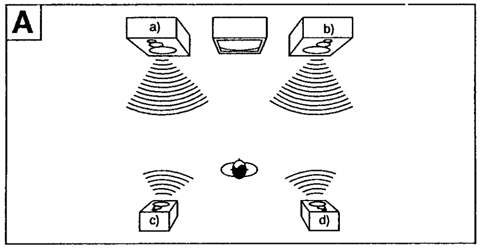

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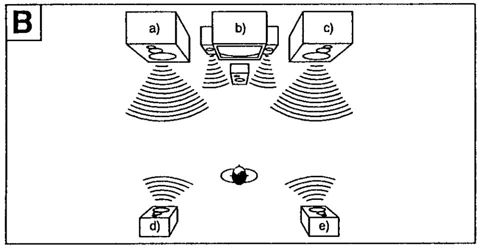


Getting Ready to Enjoy Surround Sound

Arrangement of the Speakers

Where you place the speakers depends on the size and acoustics of the listening room. The illustrations are just examples.
We recommend that you try to find the speaker direction or location in which the optimum surround effect can be obtained.

For a basic surround system (Fig. A)

Two front and two rear speakers are necessary to enjoy the surround function.

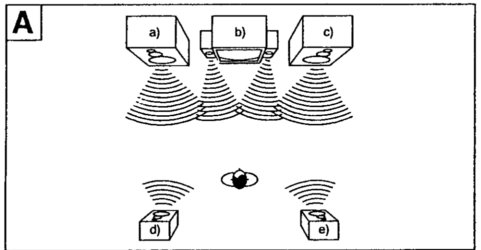
a) Front speaker (L)
b) Front speaker (R)
c) Rear speaker (L)
d) Rear speaker (R)

For a Dolby Pro Logic surround system (Fig. B)

One or two center speakers are required in addition to the basic four speakers.
When using two center speakers, set the speakers on both sides of a TV. The setting in which the vocal image will be located at the center of the TV screen is better for the surround effect.
Even when you do not use center speakers, you can simulate the Dolby Pro Logic effect by selecting the PHANTOM mode in Dolby Pro Logic modes.

a) Front speaker (L)
b) Center speakers
c) Front speaker (R)
d) Rear speaker (L)
e) Rear speaker (R)

A



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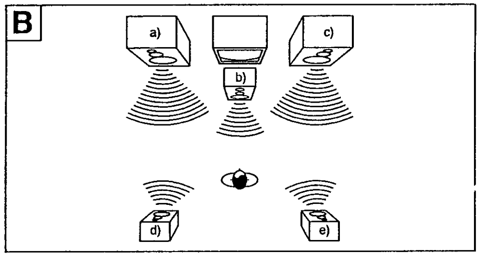
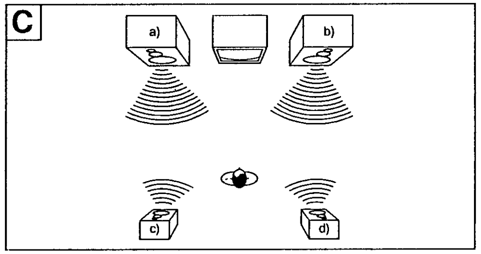
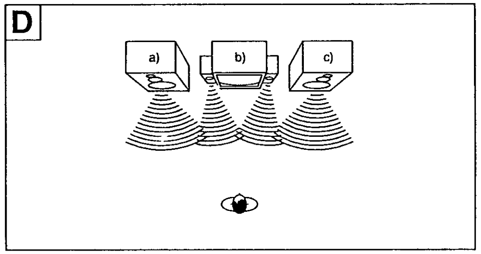


C



D



Getting Ready to Enjoy Surround Sound

Selecting the Dolby Pro Logic Modes (only for DOLBY SURROUND and THEATER modes)

In the DOLBY SURROUND and THEATER modes, a speaker mode can be selected to match your speaker system. Press the PRO LOGIC MODE button to select the appropriate mode.

NORMAL mode (Fig. A)

Select this mode when using small center speaker(s). The bass sound of the center channel is output from the front speakers, since small speaker(s) cannot produce enough bass.

a) Front speaker (L)
b) Center speakers
c) Front speaker (R)
d) Rear speaker (L)
e) Rear speaker (R)

WIDE mode (Fig. B)

Select this mode when using a medium to large center speaker.

a) Front speaker (L)
b) Center speaker
c) Front speaker (R)
d) Rear speaker (L)
e) Rear speaker (R)

PHANTOM mode (Fig. C)

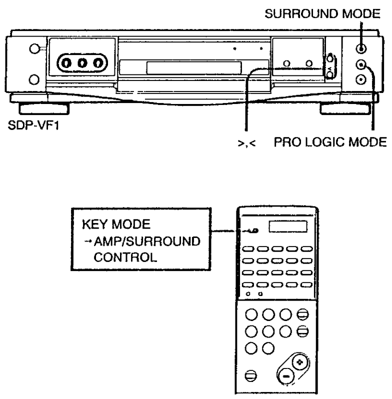
Select this mode when not using center speakers. The sound of the center channel can be heard from the front speakers.

a) Front speaker (L)
b) Front speaker (R)
c) Rear speaker (L)
d) Rear speaker (R)

3CH.LOGIC mode (Fig. D)

Select this mode when not using rear speakers. The sound of the rear channels can be heard from the front speakers.

a) Front speaker (L)
b) Center speakers
c) Front speaker (R)



Selecting the Surround Mode

Selecting the Surround Mode

Press the SURROUND MODE button to select the surround mode.
Or, press the SURROUND MODE button and press the > or < button to select the surround mode.

When you select DOLBY SURROUND or THEATER mode

You can select the operation modes of the speakers according to your speaker system by pressing the PRO LOGIC MODE button. (See page 104.)

To cancel the surround mode

Press the SURROUND MODE button so that "SURROUND OFF" is indicated.

When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.

b) \ a)	DOLBY SURROUND	THEATER	HALL	JAZZ CLUB	STADIUM
(1)	○*2	○*2	○	○	○
(2)	○*1	○*1			
(3)		○	○	○	○
(4)	○*2				
(5)		○	○	○	○

Adjusting the Parameters

Adjustable Parameters

The SDP-VF1 reproduces the early reflections and the reverberation using its digital signal processor and allows you to design a variety of soundfields in your own room.
The SDP-VF1 incorporates 5 types of surround modes, and within each mode, you can adjust several parameters to maximize the effect in your listening room.

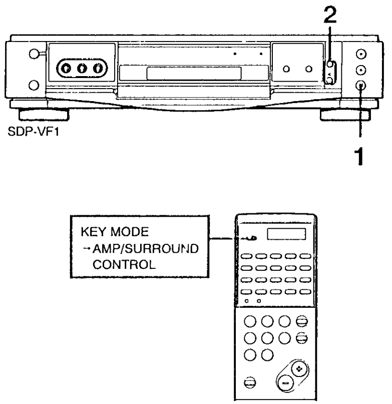
Concerning the table at the left

Parameters marked with ○ can be adjusted.

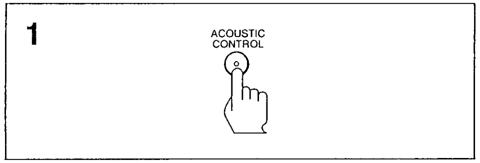
a) Surround modes
b) Parameters
(1) Rear level
(2) Center level
(3) Early reflection time
(4) Delay time
(5) Effect level

*1 The center level cannot be adjusted in the PHANTOM mode.
*2 This parameter cannot be adjusted in 3CH.LOGIC mode.

Notes
- For adjustment of the rear level and center level, see page 120.
- For adjustment of the delay time, see page 126.
- The data of the early reflection time, delay time and effect level can be programmed into each surround mode individually. The data of the rear level and center level are the same data in all modes.
- Each surround mode has several internal (fixed) parameters in addition to the adjustable parameters. Therefore, surround modes do not become the same even if you set all adjustable parameters to the same level.



1



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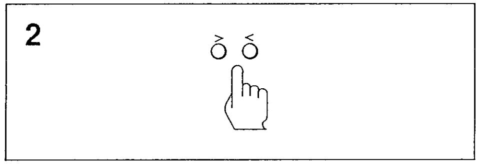


Adjusting the Parameters

Adjusting the Rear Level

1 **Press the ACOUSTIC CONTROL button so that "REAR L□□□dB" or "REAR R□□□dB" is indicated to adjust the left rear level or the right rear level respectively.**
The indicator is turned on.

2 **Press the > or < button to adjust the rear level.**
You can adjust the level between −20dB and +10dB, and the initial setting is 0dB.

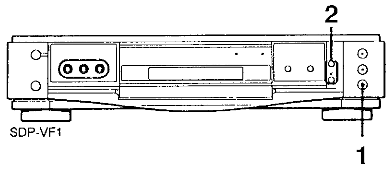
When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.

Adjusting the Center Level

1 **Press the ACOUSTIC CONTROL button so that "CENTER□□□dB" is indicated.**
The indicator is turned on.

2 **Press the > or < button to adjust the center level.**
You can adjust the level between −20dB and +10dB, and the initial setting is 0dB.

When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.



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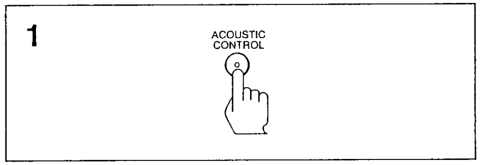

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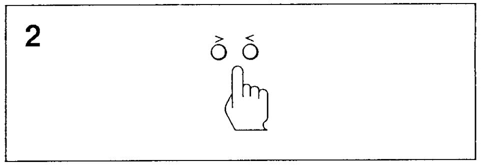

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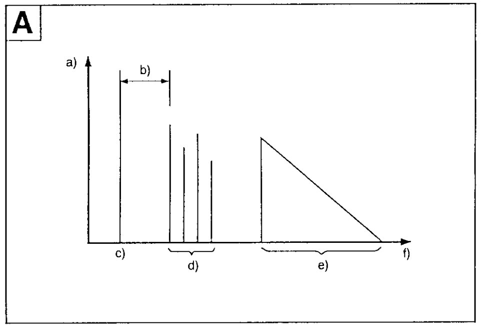


Adjusting the Parameters

Adjusting the Early Reflection Time (except for DOLBY SURROUND Mode)

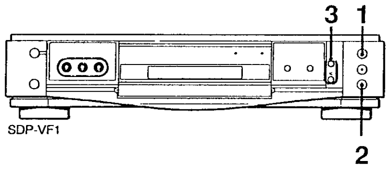
The early reflection time is the key parameter which determines the room size and listening position.
Adjustment of this parameter changes the time required for the sound to reach the listening position.
The longer the time, the greater the sensation of distance to the origin of the sound.

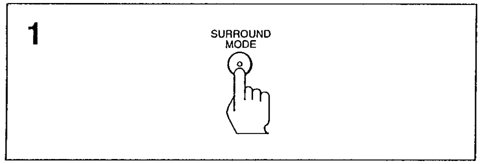
1 **Press the ACOUSTIC CONTROL button so that "E.R.TIME□□□ms" is indicated.**
The indicator is turned on.

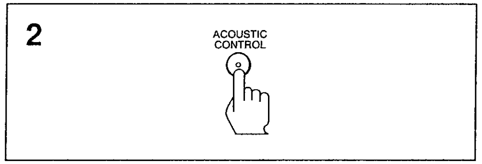
2 **Press the > or < button to adjust the early reflection time.**
You can adjust the time between 0ms and 51ms in the THEATER and JAZZ CLUB modes, and the initial setting is 30ms in the THEATER mode and 21ms in the JAZZ CLUB mode.
You can adjust the time between 0ms and 90ms in the HALL and STADIUM modes, and the initial setting is 27ms in the HALL mode and 90ms in the STADIUM mode.

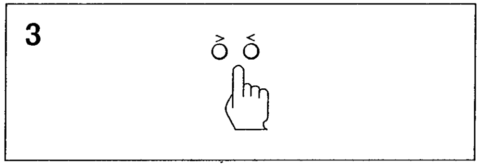
Fig. A shows:
- a) Level
- b) Early reflection time (0ms to 90ms)
- c) Direct sound
- d) Reflections
- e) Reverberation
- f) Time

When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.









Adjusting the Parameters

Adjusting the Delay Time (only for DOLBY SURROUND Mode)

The delay time is a time between the surround sound from the front speakers (as direct sound) and that from the rear speakers (as reflected sound). The delay time is adjustable between 15 and 30ms. When setting the rear speakers in a large room or apart from your listening position, set a short delay time. When setting the rear speakers in a small room or close to your listening position, set a long delay time.

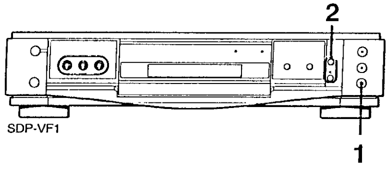
1 **Press the SURROUND MODE button to select the DOLBY SURROUND mode.**

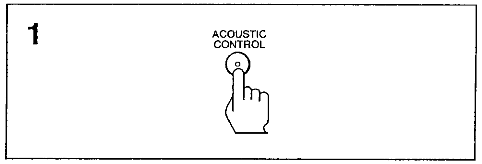
2 **Press the ACOUSTIC CONTROL button so that "DEL.TIME□□ms" is indicated.**
The indicator is turned on.

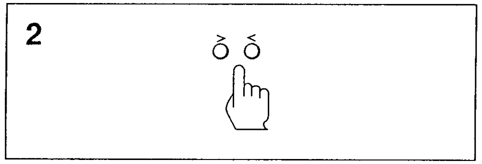
3 **Press the > or < button to adjust the delay time.**
You can adjust the time between 15ms and 30ms, and the initial setting is 21ms.

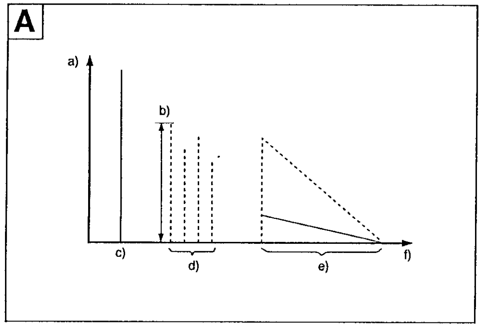
Note
Adjustment of the delay time is available only for the Dolby surround processed sources.

When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.









Adjusting the Parameters

Adjusting the Effect Level (except for DOLBY SURROUND Mode)

This parameter adjusts the level of early reflections and reverberation. The adjustable range is between 1 and 10, and as the number gets larger, the room becomes more "live", and as it gets smaller, the room becomes more "dead".

1 **Press the ACOUSTIC CONTROL button so that "EFFECT LEVEL□" is indicated.**
The indicator is turned on.

2 **Press the > or < button to adjust the effect level.**
You can adjust the level between 1 and 10, and the initial setting is 8.

Note
You may hear noise while adjusting the parameter.

Fig. A shows:
- a) Level
- b) Effect level (1 to 10)
- c) Direct sound
- d) Reflections
- e) Reverberation
- f) Time

When using the remote commander
Be sure to set the KEY MODE switch to AMP/SURROUND CONTROL.

SECTION 2
IC PIN FUNCTIONS

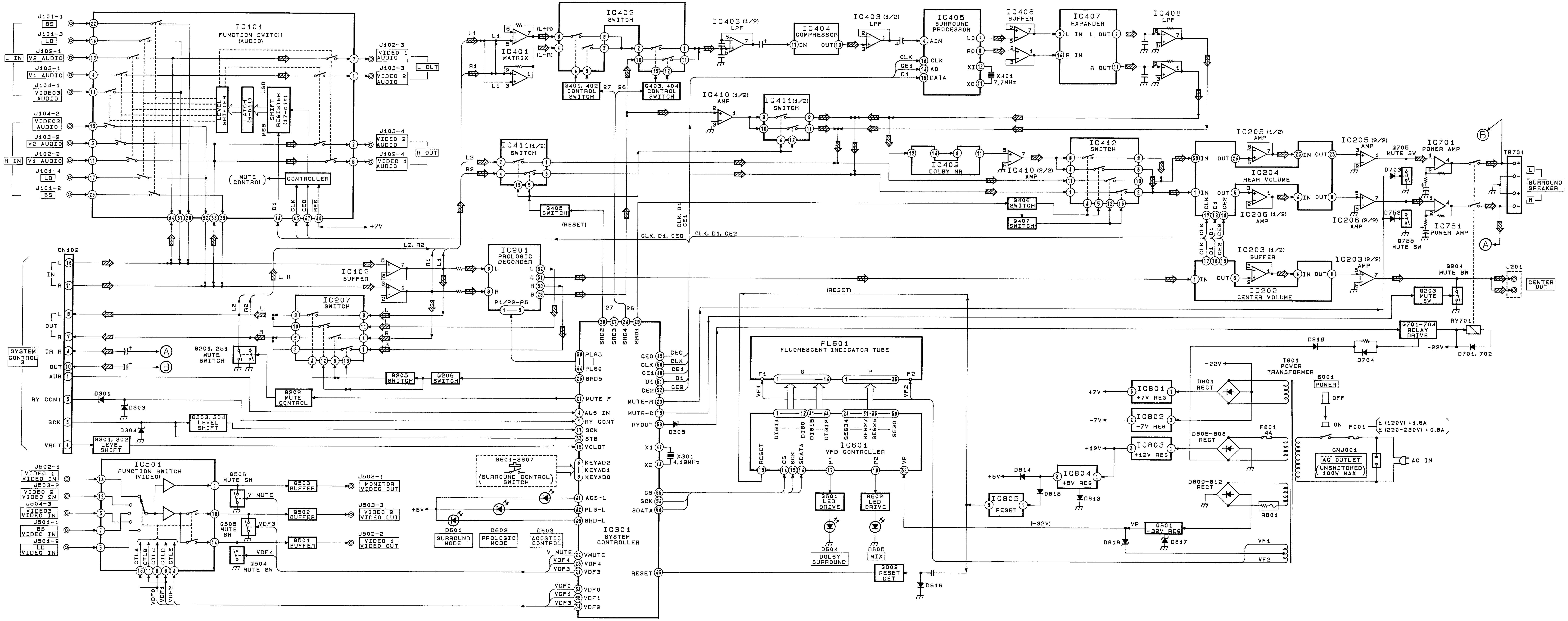
• IC301 μPD75108CW-C87

Pin No.	Pin Name	I/O	Description
1	RYIN	I	Relay control signal input.
2	RELAY	I	Pull down to GND.
3	SIRCS	I	Pull down to GND.
4	AUBIN	I	Audio bus input.
5	KEY AD3	I	Pull down to GND.
6	KEY AD2	I	A/D KEY input 2.
7	KEY AD1	I	A/D KEY input 1.
8	KEY AD0	I	A/D KEY input 0.
9	—	—	GND
10	—	—	GND
11	—	—	Not in use.
12	—	O	Not in use.
13	—	O	Not in use.
14	—	O	Not in use.
15	VOL DT	I	Volume control positioning data input. (serial)
16	—	—	Not in use.
17	SCK	I	Volume control positioning data clock input.
18	ACOUT	I	Power supply shut-off detection at edge of slope.
19	MUTEC	O	Muting output for center speaker.
20	MUTE-R	O	Muting output for surround speaker (REAR).
21	MUTE-F	O	Muting output for front speaker (TA-VF1).
22	V MUTE	O	Muting output for Video (MONITOR).
23	VDF4	O	Muting output for Video (VIDEO 1).
24	VDF3	O	Muting output for Video (VIDEO 2).
25	SRD5	O	Surround control output 5.
26	SRD4	O	Surround control output 4.
27	SRD3	O	Surround control output 3.
28	SRD2	O	Surround control output 2.
29	SRD1	O	Surround control output 1.
30	SRD0	O	Surround control output 0.
31	—	—	Pull up to +5V.
32	VDD	—	+Power supply terminal.
33	STB	O	Volume control positioning data ANK.
34	VDF2	O	Video function output 2.
35	VDF1	O	Video function output 1.
36	VDF0	O	Video function output 0.
37	—	—	Not in use.
38	RYOUT	O	Relay control output.
39	PLG5	O	Prologic control output 5.
40	PLG4	O	Prologic control output 4.

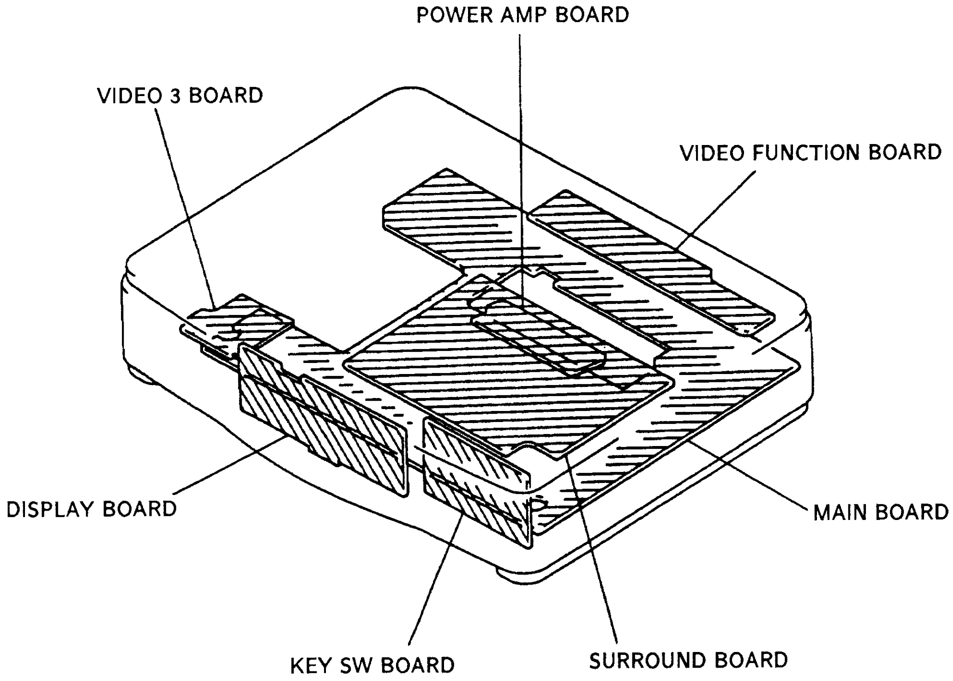
Pin No.	Pin Name	I /O	Description
41	PLG3	O	Prologic control output 3.
42	PLG2	O	Prologic control output 2.
43	PLG1	O	Prologic control output 1.
44	PLG0	O	Prologic control output 0.
45	RESET	I	Reset signal input at power ON.
46	X1	—	Xtal connection terminal.
47	X2	—	Xtal connection terminal.
48	CE1	O	Latch output for IC405 YM7128 (serial).
49	CE0	O	Latch output for IC101 CXD8200Q (serial).
50	CLK	O	Clock output. (serial)
51	D1	O	Data output (serial)
52	CE2	O	Latch output for IC202/204 LC7535 (serial).
53	SDATA	O	Data output for IC601 M66004 (serial).
54	SCK	O	Clock output for IC601 M66004 (serial).
55	CS	O	Latch output for IC601 M66004 (serial).
56	—	—	Not in use.
57	—	—	Not in use.
58	—	—	Not in use.
59	—	—	Not in use.
60	—	—	Not in use.
61	ACSL	O	LED indication output for ACOUSTIC CONTROL.
62	PLGL	O	LED indication output for PROLOGIC MODE.
63	SRDL	O	LED indication output for SURROUND MODE.
64	VSS	—	GND terminal.

SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM

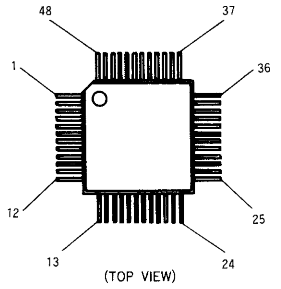

J101-1 BS
J101-3 LD
J102-1 V2 AUDIO
J103-1 V1 AUDIO
J104-1 VIDEO3 AUDIO
L IN
J104-2 VIDEO3 AUDIO
J103-2 V2 AUDIO
J102-2 V1 AUDIO
J101-4 LD
J101-2 BS
R IN
IC101 FUNCTION SWITCH (AUDIO)
LEVEL SHIFTER
LATCH (9-bit)
SHIFT REGISTER (17-bit)
LSB
MSB
MUTE CONTROL
CONTROLLER
D1 CLK CEO REG
+7V
J102-3 VIDEO 1 AUDIO
J103-3 VIDEO 2 AUDIO
L OUT
J103-4 VIDEO 2 AUDIO
J102-4 VIDEO 1 AUDIO
R OUT
IC401 MATRIX
(L+R)
(L-R)
IC402 SWITCH
Q401, 402 CONTROL SWITCH
Q403, 404 CONTROL SWITCH
IC403 (1/2) LPF
IC404 COMPRESSOR
IC405 SURROUND PROCESSOR
AIN
CLK
AD
DATA
X401 7.7MHz
IC406 BUFFER
IC407 EXPANDER
IC408 LPF
IC410 (1/2) AMP
IC411 (1/2) SWITCH
IC409 DOLBY NR
IC410 (2/2) AMP
IC412 SWITCH
Q406 SWITCH
Q407 SWITCH
Q405 SWITCH
(RESET)
CLK, D1, CEO
CLK, D1, CE2
CLK, D1, CE1
L2, R2
IC205 (1/2) AMP
IC204 REAR VOLUME
IC206 (1/2) AMP
IC205 (2/2) AMP
IC206 (2/2) AMP
Q705 MUTE SW
Q755 MUTE SW
IC701 POWER AMP
IC751 POWER AMP
TB701
SURROUND SPEAKER
IC203 (1/2) BUFFER
IC202 CENTER VOLUME
IC203 (2/2) AMP
Q204 MUTE SW
Q203 MUTE SW
J201
CENTER OUT
Q701-704 RELAY DRIVE
RY701
D819
D704
-22V
D701, 702
CN102
SYSTEM CONTROL 3
IN L R
OUT L R
IR R
OUT
AUB
RY CONT
SCK
VRDT
IC102 BUFFER
IC201 PROLOGIC DECODER
IC207 SWITCH
Q201, 251 MUTE SWITCH
Q205 SWITCH
Q206 SWITCH
Q202 MUTE CONTROL
D301
D303
D304
Q303, 304 LEVEL SHIFT
Q301, 302 LEVEL SHIFT
IC301 SYSTEM CONTROLLER
SRD2 SRD3 SRD4 SRD1
PLG5
PLG0
SRD5
MUTE F
AUB IN
RY CONT
SCK
STB
VOLDT
KEYAD2 KEYAD1 KEYAD0
ACS-L
PLG-L
SRD-L
VMUTE VDF4 VDF3
VDF0 VDF1 VDF2
CEO CLK CE1 D1 CE2
MUTE-R
MUTE-C
RYOUT
D305
X1 X2
X301 4.19MHz
CS SCK SDATA
RESET
S601-S607 (SURROUND CONTROL SWITCH)
+5V
D601 SURROUND MODE
D602 PROLOGIC MODE
D603 ACOSTIC CONTROL
J502-1 VIDEO 1 VIDEO IN
J503-2 VIDEO 2 VIDEO IN
J504-3 VIDEO3 VIDEO IN
J501-1 BS VIDEO IN
J501-2 LD VIDEO IN
IC501 FUNCTION SWITCH (VIDEO)
CTLA CTLB CTLC CTLD CTLE
Q506 MUTE SW
Q505 MUTE SW
Q504 MUTE SW
V MUTE
Q503 BUFFER
Q502 BUFFER
Q501 BUFFER
J503-1 MONITOR VIDEO OUT
J503-3 VIDEO 2 VIDEO OUT
J502-2 VIDEO 1 VIDEO OUT
FL601 FLUORESCENT INDICATOR TUBE
F1 G P F2
IC601 VFD CONTROLLER
DIG11 DIG0 DIG15 DIG12 SEG34 SEG27 SEG26 SEG0
RESET CS SCK SDATA P1 P2 VP
Q601 LED DRIVE
Q602 LED DRIVE
D604 DOLBY SURROUND
D605 MIX
Q802 RESET DET
D816
IC801 +7V REG
IC802 -7V REG
IC803 +12V REG
IC804 +5V REG
IC805 RESET
D814 D815 D813
+7V -7V +12V +5V
D801 RECT
D805-808 RECT
D809-812 RECT
F801 4A
R801
Q801 -32V REG
(-32V)
VP
D818 D817
VF1 VF2
T901 POWER TRANSFORMER
S001 POWER
OFF ON
F001 E (120V) : 1.6A E (220-230V) : 0.8A
CNJ001
AC OUTLET (UNSWITCHED) 100W MAX
AC IN

3-2. CIRCUIT BOARDS LOCATION

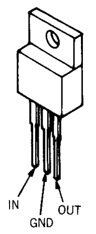

POWER AMP BOARD
VIDEO 3 BOARD
VIDEO FUNCTION BOARD
DISPLAY BOARD
MAIN BOARD
KEY SW BOARD
SURROUND BOARD

3-3. SEMICONDUCTOR LEAD LAYOUTS

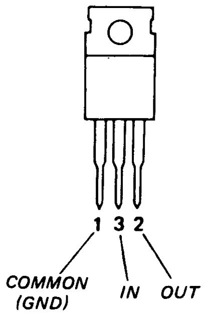
CXD8200Q


48
37
1
36
12
25
13
24
(TOP VIEW)

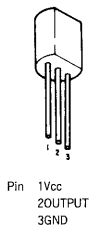
M5F7807L
TA7805S
TA7812S



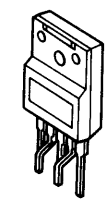
M5F7907L


1 3 2
COMMON
(GND)
IN
OUT

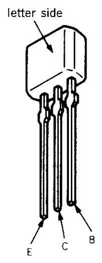
M51943BSL


1 2 3
Pin 1Vcc
2OUTPUT
3GND

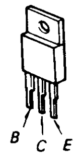
SI18752N



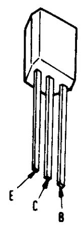
2SA1175-FEK
2SA1175-HFE
2SC3623A-LK
DTC114TS


letter side
E
C
B

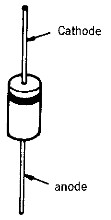
2SB1094-LK



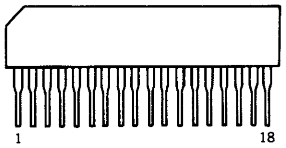
2SC2603-EF
DTA124ES
DTC124ES



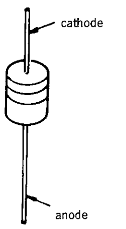
10E2
1N4148M


Cathode
anode

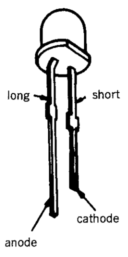
RBA-402



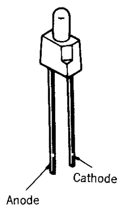
UZL-7L3
UZL-33L
UZP-6.8BC


cathode
anode

SEL2810A


long
short
anode
cathode

SEL4117R


Anode
Cathode

3-4. PRINTED WIRING BOARDS

· See page 15 for Circuit Boards Location and Semiconductor Lead Layouts.

● **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D301	H-19	IC405	D-5
D302	B-17	IC406	D-4
D303	C-19	IC407	D-3
D304	C-19	IC408	D-1
D305	C-14	IC409	C-2
D306	B-16	IC410	B-3
D307	C-14	IC411	B-4
D401	D-6	IC412	B-4
D601	H-1	IC501	J-26
D602	I-1	IC601	G-23
D603	I-1	IC701	H-13
D604	H-25	IC751	H-15
D605	H-26	IC801	D-12
D701	E-13	IC802	E-12
D702	E-13	IC803	B-11
D703	E-15	IC804	B-12
D704	C-12	IC805	B-12
D753	E-15		
D801	D-12	Q201	F-19
D802	D-6	Q202	C-19
D803	D-6	Q203	E-15
D804	D-7	Q204	F-17
D805	C-12	Q205	C-18
D806	C-12	Q206	C-18
D807	C-12	Q251	F-19
D808	C-12	Q301	B-16
D809	B-9	Q302	B-16
D810	B-9	Q303	B-18
D811	B-9	Q304	B-17
D812	B-9	Q401	E-5
D813	B-11	Q402	E-5
D814	B-12	Q403	F-5
D815	B-12	Q404	F-5
D816	B-13	Q405	B-5
D817	B-10	Q406	B-5
D818	B-10	Q407	B-5
D819	B-12	Q501	J-24
		Q502	J-22
IC101	H-18	Q503	J-21
IC102	G-18	Q504	J-25
IC201	D-14	Q505	J-22
IC202	F-18	Q506	J-21
IC203	F-16	Q601	G-23
IC204	E-18	Q602	G-23
IC205	E-16	Q701	E-13
IC206	D-16	Q702	E-13
IC207	D-16	Q703	F-14
IC301	B-16	Q704	F-14
IC401	E-6	Q705	E-15
IC402	E-5	Q755	E-15
IC403	E-4	Q801	C-10
IC404	F-2	Q802	B-13

Note:

- ● ○—— : parts extracted from the component side.
- ● —— : parts extracted from the conductor side.
- ● ▨ : Pattern on the side which is seen.

[SURROUND BOARD]
[MAIN BOARD]
POWER TRANSFORMER T901
[KEY SW BOARD]
AC IN
[POWER AMP BOARD]
FL601 FLUORESCENT INDICATOR TUBE
16G 15G 14G 13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G
[DISPLAY BOARD]
DOLBY SURROUND
MIX
[VIDEO 3 BOARD]
[VIDEO FUNCTION BOARD]
MONITOR VIDEO OUT
VIDEO 2
VIDEO OUT
VIDEO IN
VIDEO 1
LD VIDEO IN
BS VIDEO IN
AC OUTLET
UNSWITCHED 100W MAX
L
R
SURROUND SPEAKER
CENTER OUT
L OUT - AUDIO - R OUT
L IN - AUDIO - R IN
VIDEO 2
VIDEO 1
LD IN - L - AUDIO - R
L - AUDIO - R - BS IN
SYSTEM CONTROL 3
(FROM TA-VF1)
1-641-317-
1-641-321-
1-641-322-

3-5. SCHEMATIC DIAGRAMS—MAIN Section—

• See page 29 for IC Block Diagrams.

[MAIN BOARD]
[VIDEO FUNCTION BOARD]
[POWER AMP BOARD]
IC101 CXD-8200Z AUDIO FUNCTION
IC102 M5218AP BUFFER
IC201 LA2780 PROLOGIC DECORDER
IC202 CENTER VOLUME
IC203 M5218AP BUFFER
IC204 REAR VOLUME
IC205 M5218AP AMP
IC206 M5218AP AMP
IC207 LC4066BHK SWITCH
IC301 μPD75108CW-C87 SYSTEM CONTROLLER
IC501 FUNCTION SW
IC701 SI-1875ZN AMP
IC751 SI-1875ZN AMP
IC801 +7V REG
IC802 -7V REG
IC803 +12V REG
IC804 +5V REG
IC805 RESET DET
Q251 2SC3623A MUTE SW
Q201 2SC3623A MUTE SW
Q202 2SA1115 MUTE SW
Q203 2SA1115 MUTE SW
Q206 2SA1346 SWITCH
Q205 2SC3400 SWITCH
Q301-304 LEVEL SHIFT
Q802 2SC2603 RESET SW
Q705 2SC2860K MUTE SW
Q755 2SC2860K MUTE SW
Q701 2SA1115 RELAY DRIVE
Q702 2SC2603 RELAY DRIVE
Q704 Q703 2SC2603 RELAY DRIVE
Q204 2SC3623A MUTE SW
Q504 2SA1115 MUTE SW
Q505 2SA1115 MUTE SW
Q506 2SA1115 MUTE SW
Q501 Q502 Q503 2SA1175 VIDEO BUFFER
T801 POWER TRANSFORMER
S001 POWER
D801,806-808,809-812 RECT
BS IN
LD IN
VIDEO 1
VIDEO 2
AUDIO IN
AUDIO OUT
SYSTEM CONTROL 3 FROM TA-VF1
SURROUND BOARD CN451
SURROUND BOARD CN452
VIDEO3 BOARD CN151
VIDEO BOARD CN502
DISPLAY BOARD CN652
KEY SW BOARD CN651
SURROUND SPEAKER
CENTER OUT
VIDEO OUT
MONITOR VIDEO OUT
AC OUTLET (UNSWITCHED) 100W MAX
AC IN
✱F001 E(120V): 1.6A E(220V-230V): 0.8A

Note:

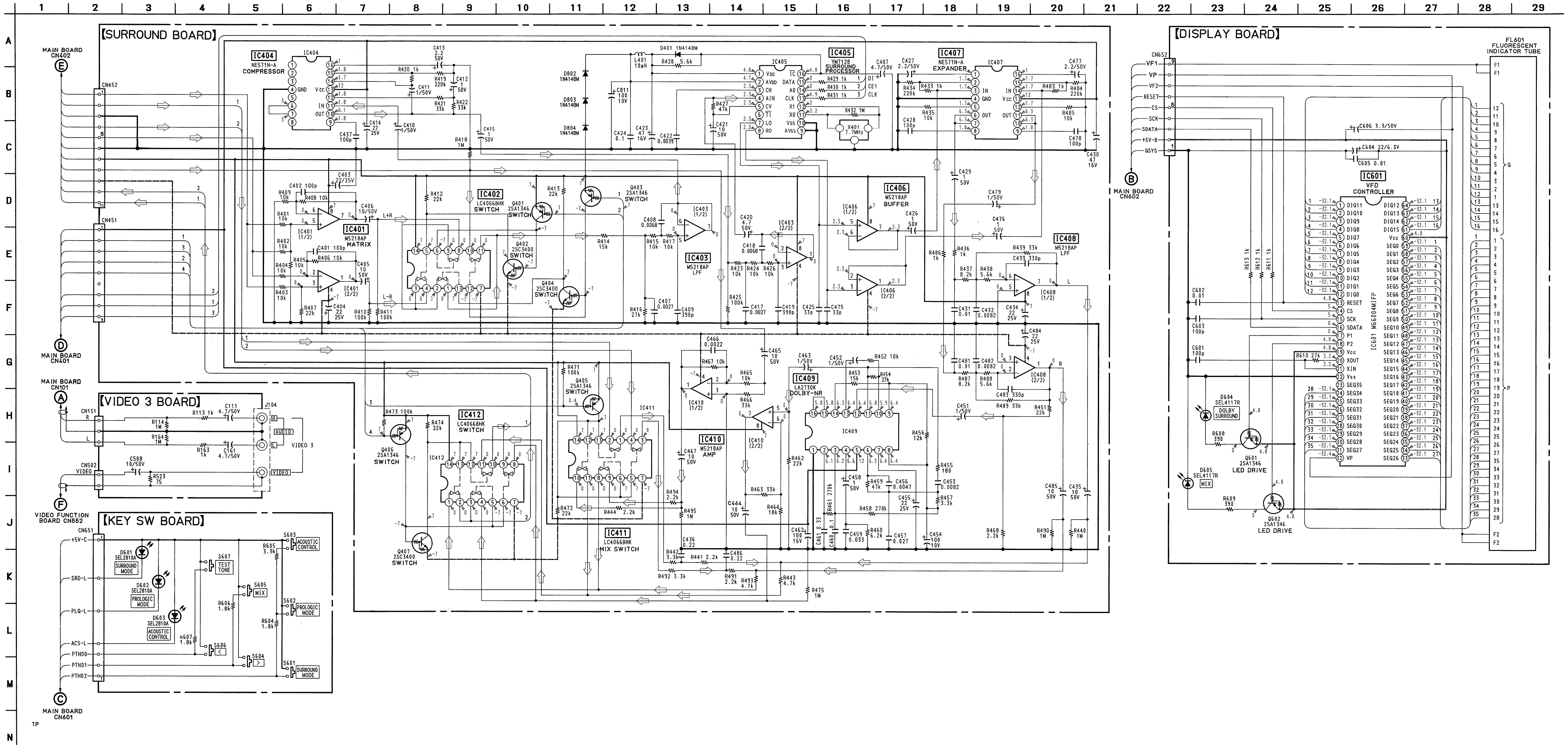
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD

3-6. SCHEMATIC DIAGRAMS—SURROUND Section—

• See page 29 for IC Block Diagrams.



【SURROUND BOARD】
【DISPLAY BOARD】
【VIDEO 3 BOARD】
【KEY SW BOARD】
MAIN BOARD CN402
MAIN BOARD CN401
MAIN BOARD CN101
MAIN BOARD CN602
MAIN BOARD CN601
VIDEO FUNCTION BOARD CN562
IC404 NE571N-A COMPRESSOR
IC405 YM7128 SURROUND PROCESSOR
IC407 NE571N-A EXPANDER
IC401 M5218AP MATRIX
IC402 LC4066BHK SWITCH
IC403 M5218AP LPF
IC406 M5218AP BUFFER
IC408 M5218AP LPF
IC409 LA2730K DOLBY-NR
IC410 M5218AP AMP
IC411 LC4066BHK MIX SWITCH
IC412 LC4066BHK SWITCH
Q401 2SA1346 SWITCH
Q402 2SC3400 SWITCH
Q403 2SA1346 SWITCH
Q404 2SC3400 SWITCH
Q405 2SA1346 SWITCH
Q406 2SA1346 SWITCH
Q407 2SC3400 SWITCH
X401 7.7MHz
IC601 VFD CONTROLLER
IC601 M66004M1FP
FL601 FLUORESCENT INDICATOR TUBE
D604 SEL4117R DOLBY SURROUND
D605 SEL4117R MIX
Q601 2SA1346 LED DRIVE
Q602 2SA1346 LED DRIVE
D601 SEL2810A SURROUND MODE
D602 SEL2810A PROLOGIC MODE
D603 SEL2810A ACOUSTIC CONTROL
S601 SURROUND MODE
S602 PROLOGIC MODE
S603 ACOUSTIC CONTROL
S604 >
S605 MIX
S606 <
S607 TEST TONE
J104 VIDEO 3
AUDIO
VIDEO
TP

Note:

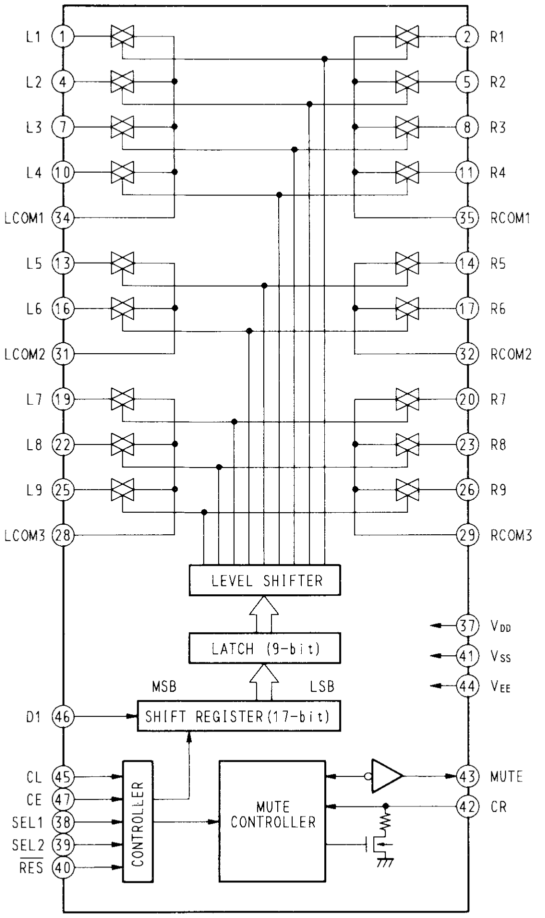
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

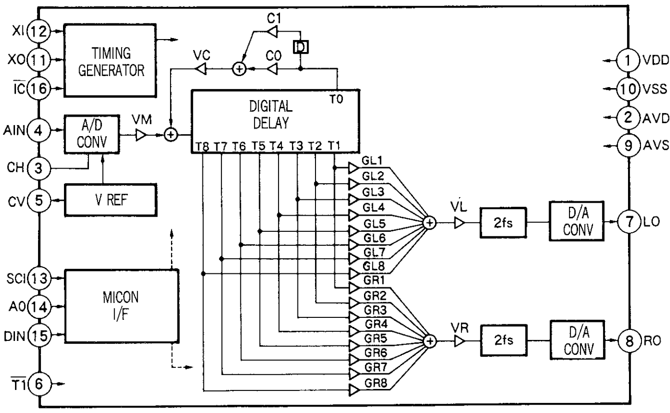
- ▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD

3-7. IC BLOCK DIAGRAMS

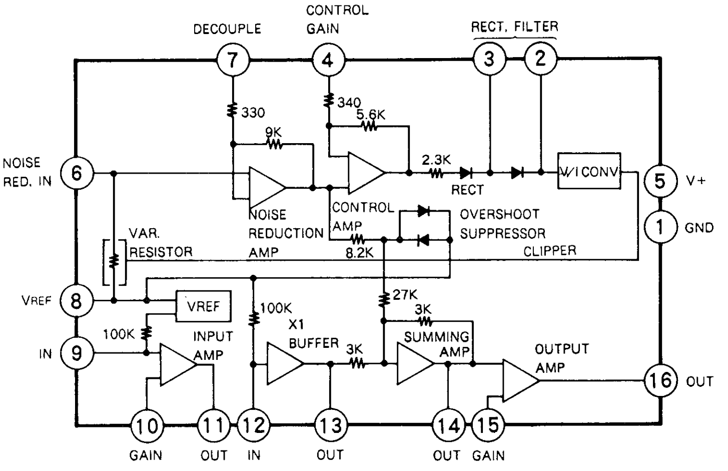
IC101 CXD-8200Q


L1 1
L2 4
L3 7
L4 10
LCOM1 34
L5 13
L6 16
LCOM2 31
L7 19
L8 22
L9 25
LCOM3 28
2 R1
5 R2
8 R3
11 R4
35 RCOM1
14 R5
17 R6
32 RCOM2
20 R7
23 R8
26 R9
29 RCOM3
LEVEL SHIFTER
LATCH (9-bit)
MSB
LSB
SHIFT REGISTER (17-bit)
D1 46
37 VDD
41 VSS
44 VEE
CL 45
CE 47
SEL1 38
SEL2 39
RES 40
CONTROLLER
MUTE CONTROLLER
43 MUTE
42 CR

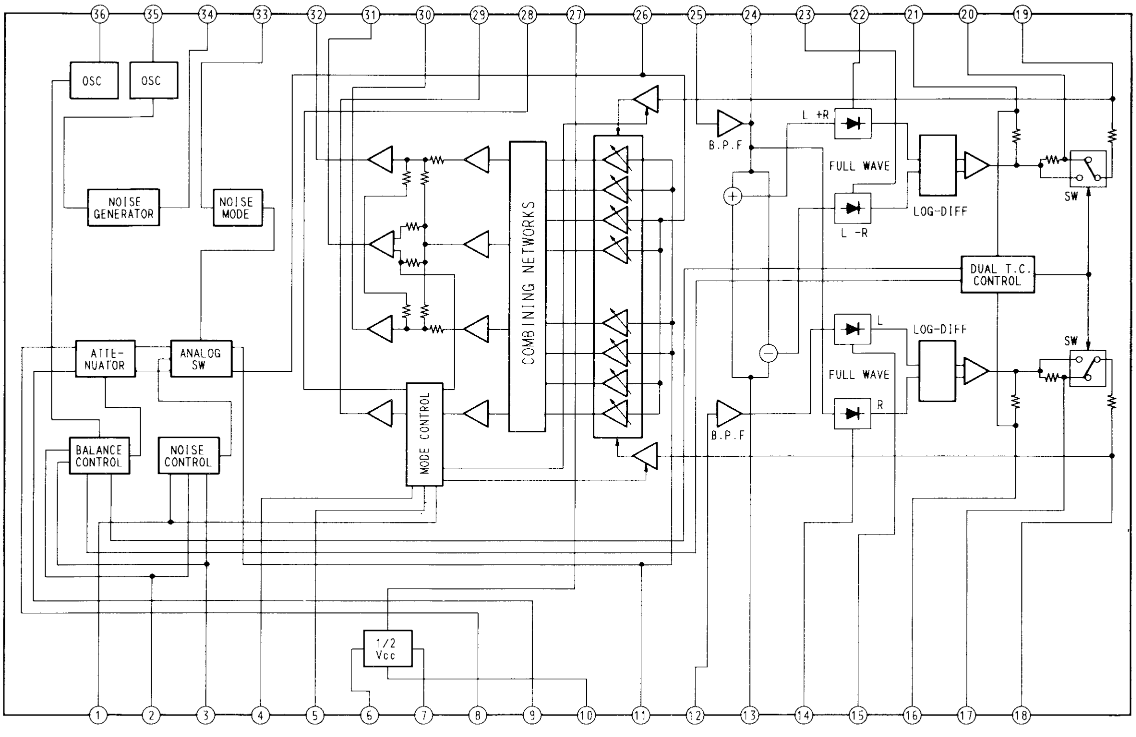
IC405 YM7128


XI 12
XO 11
IC 16
AIN 4
CH 3
CV 5
SCI 13
A0 14
DIN 15
T1 6
TIMING GENERATOR
A/D CONV
V REF
MICON I/F
VM
VC
C1
C0
T0
DIGITAL DELAY
T8 T7 T6 T5 T4 T3 T2 T1
GL1
GL2
GL3
GL4
GL5
GL6
GL7
GL8
GR1
GR2
GR3
GR4
GR5
GR6
GR7
GR8
VL
VR
2fs
2fs
D/A CONV
D/A CONV
1 VDD
10 VSS
2 AVDI
9 AVSS
7 LO
8 RO

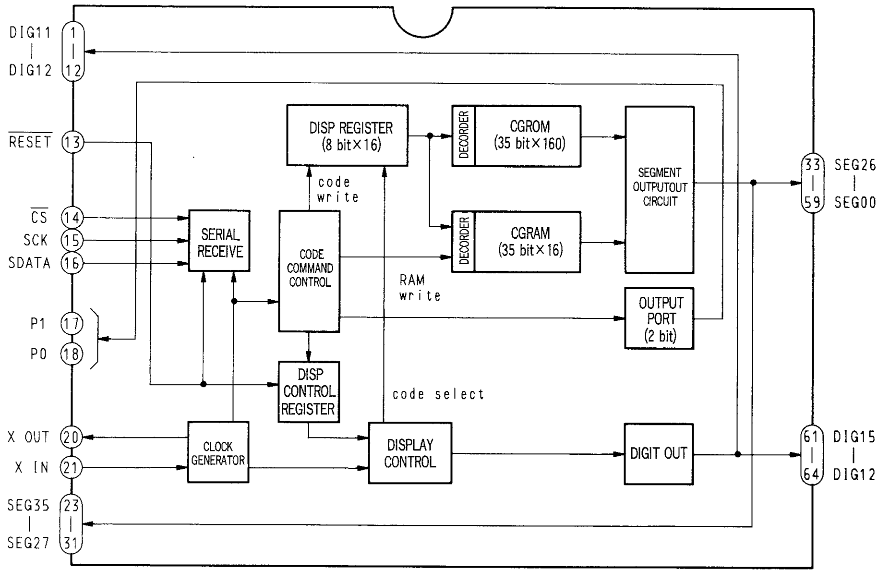
IC409 LA2730K


DECOUPLE
CONTROL GAIN
RECT. FILTER
7
4
3
2
330
340
5.6K
9K
2.3K
NOISE RED. IN 6
NOISE REDUCTION AMP
CONTROL AMP
RECT
V/I CONV
OVERSHOOT SUPPRESSOR
CLIPPER
8.2K
VAR. RESISTOR
5 V+
1 GND
VREF 8
VREF
100K
100K
X1
27K
3K
IN 9
INPUT AMP
BUFFER
3K
SUMMING AMP
OUTPUT AMP
16 OUT
10 GAIN
11 OUT
12 IN
13 OUT
14 OUT
15 GAIN

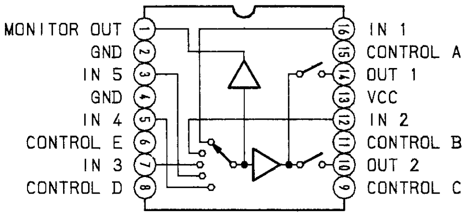
IC201 LA2780


36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
OSC
OSC
NOISE GENERATOR
NOISE MODE
ATTE-NUATOR
ANALOG SW
BALANCE CONTROL
NOISE CONTROL
MODE CONTROL
COMBINING NETWORKS
B.P.F
L +R
FULL WAVE
L -R
LOG-DIFF
SW
DUAL T.C. CONTROL
L
LOG-DIFF
FULL WAVE
R
SW
B.P.F
1/2 Vcc
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

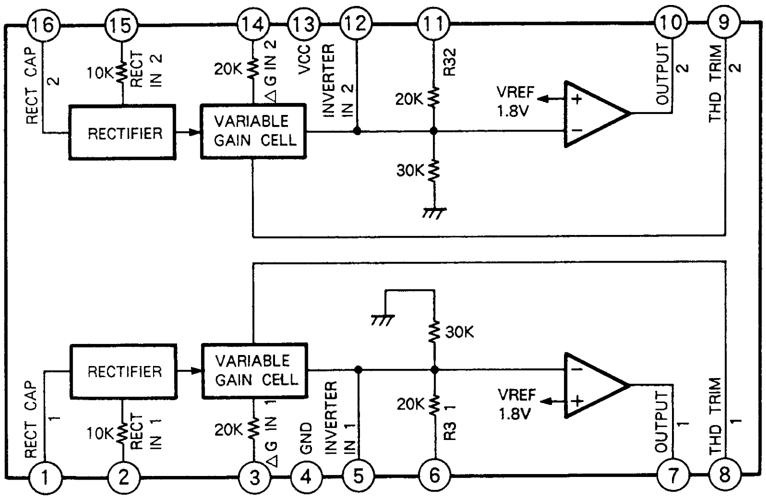
IC601 M66004MIFP


DIG11
DIG12
1
12
RESET 13
CS 14
SCK 15
SDATA 16
P1 17
P0 18
X OUT 20
X IN 21
SEG35 23
SEG27 31
SERIAL RECEIVE
CODE COMMAND CONTROL
DISP REGISTER (8 bit×16)
code write
DECORDER
CGROM (35 bit×160)
CGRAM (35 bit×16)
RAM write
SEGMENT OUTPUTOUT CIRCUIT
OUTPUT PORT (2 bit)
DISP CONTROL REGISTER
code select
CLOCK GENERATOR
DISPLAY CONTROL
DIGIT OUT
33 SEG26
59 SEG00
61 DIG15
64 DIG12

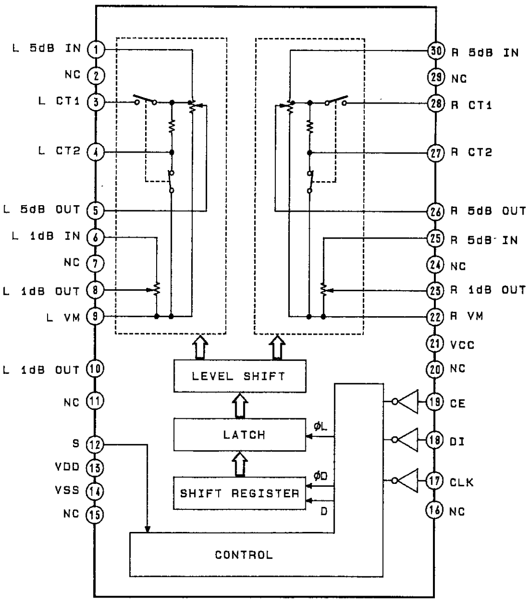
IC501 BA7625


MONITOR OUT 1
GND 2
IN 5 3
GND 4
IN 4 5
CONTROL E 6
IN 3 7
CONTROL D 8
16 IN 1
15 CONTROL A
14 OUT 1
13 VCC
12 IN 2
11 CONTROL B
10 OUT 2
9 CONTROL C

IC404, 407 NE571N-A


16
15
14
13
12
11
10
9
RECT CAP 2
10K
RECT IN 2
20K
ΔG IN 2
VCC
INVERTER IN 2
R32
20K
30K
VREF 1.8V
OUTPUT 2
THD TRIM 2
RECTIFIER
VARIABLE GAIN CELL
30K
20K
R3 1
VREF 1.8V
RECT CAP 1
10K
RECT IN 1
20K
ΔG IN 1
GND
INVERTER IN 1
OUTPUT 1
THD TRIM 1
1
2
3
4
5
6
7
8

IC202, 204 LC7536


L 5dB IN 1
NC 2
L CT1 3
L CT2 4
L 5dB OUT 5
L 1dB IN 6
NC 7
L 1dB OUT 8
L VM 9
L 1dB OUT 10
NC 11
S 12
VDD 13
VSS 14
NC 15
30 R 5dB IN
29 NC
28 R CT1
27 R CT2
26 R 5dB OUT
25 R 5dB IN
24 NC
23 R 1dB OUT
22 R VM
21 VCC
20 NC
19 CE
18 DI
17 CLK
16 NC
LEVEL SHIFT
LATCH
ϕL
SHIFT REGISTER
ϕD
D
CONTROL

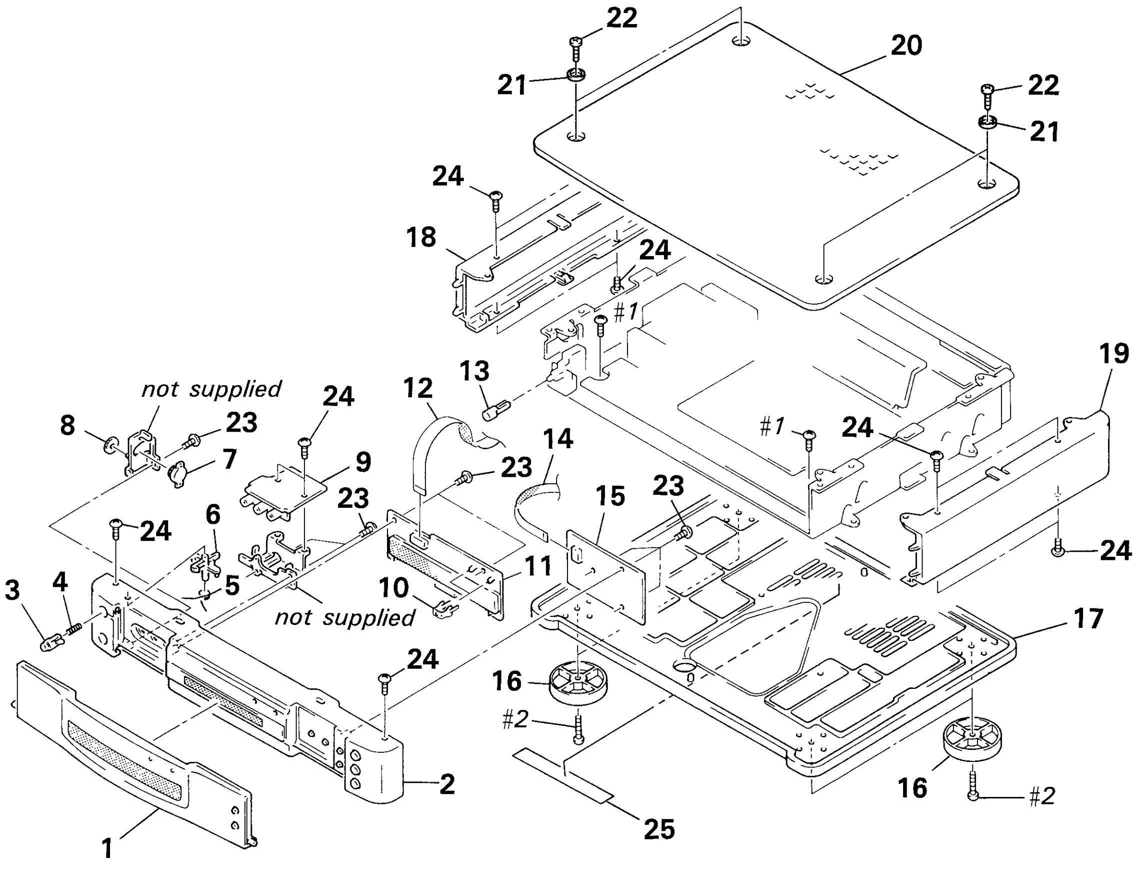
SECTION 4
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- hardware (#mark) list is given in the last of this parts list.

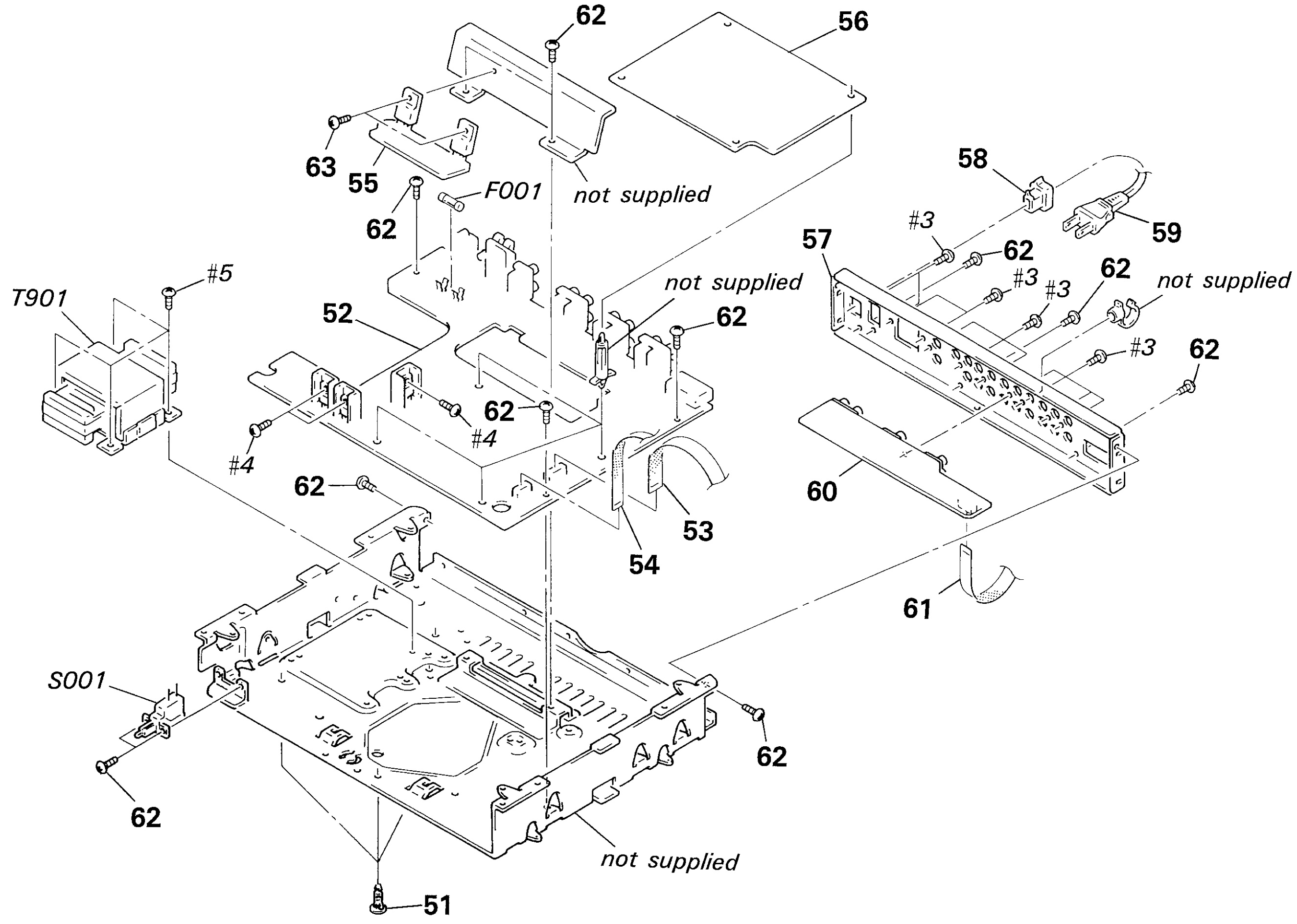
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

4-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-4941-997-1	LID (SDP) ASSY	
2	X-4941-998-1	PANEL ASSY, FRONT	
3	4-948-111-01	BUTTON (OPEN)	
4	4-948-750-01	SPRING, COMPRESSION	
5	4-948-112-01	SPRING, TORSION	
6	4-948-110-01	HOOK	
* 7	3-712-786-21	DAMPER, OIL	
8	4-948-109-01	GEAR	
* 9	1-641-322-11	VIDEO (3) BOARD	
* 10	4-948-058-01	HOLDER (LED)	
* 11	1-641-321-11	DISPLAY BOARD	
12	1-590-240-31	WIRE, FLAT TYPE (9 CORE)	
13	4-948-024-01	BUTTON (POWER)	
14	1-590-239-31	WIRE, FLAT TYPE (7 CORE)	
* 15	1-641-320-11	KEY SW BOARD	
16	4-948-027-01	FOOT (DIA. 50)	
17	4-948-021-01	COVER (LOWER) (TA)	
18	4-948-053-01	PLATE (B) (L), SIDE	
19	4-948-054-01	PLATE (B) (R), SIDE	
* 20	4-948-022-21	COVER (UPPER)	
21	4-928-025-51	ESCUTCHEON (TOP)	
22	7-682-549-04	SCREW (M3X10), S TITE, + BTT	
23	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
24	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
25	4-915-702-01	LABEL, CAUTION, DOLBY SURROUND	

4-2. CHASSIS SECTION


62
56
63
55
F001
not supplied
62
58
59
#3
57
62
#3
#3
62
not supplied
T901
#5
52
not supplied
62
#3
62
62
#4
#4
62
62
60
53
54
61
S001
62
62
not supplied
51

Ref. No.	Part No.	Description	Remark
* 51	3-704-198-21	SUPPORT, PC	
* 52	A-4345-822-A	MAIN BOARD, COMPLETE	
53	1-590-575-31	WIRE, FLAT TYPE (11 CORE)	
54	1-590-240-31	WIRE, FLAT TYPE (9 CORE)	
* 55	1-641-319-11	POWER AMP BOARD	
* 56	A-4345-829-A	SURROUND BOARD, COMPLETE	
* 57	4-947-628-11	PANEL, BACK (E:120V)	
* 57	4-947-628-21	PANEL, BACK (E:220-230V)	

Ref. No.	Part No.	Description	Remark
58	3-703-571-00	BUSHING (S) (4516), CORD	
⚠59	1-575-656-21	CORD, POWER	
* 60	1-641-318-11	VIDEO FUNCTION BOARD	
61	1-575-905-31	WIRE, FLAT TYPE (9 CORE)	
62	3-375-580-11	SCREW (NATEC BVTT) (M3X8)	
63	4-928-635-21	SCREW, +BV (2.6X10) TAPPING	
⚠F001	1-532-215-00	FUSE (0.8A TIME LAG) (E:220-230V)	
⚠F001	1-532-259-00	FUSE (1.6A TIME LAG) (E:120V)	
⚠S001	1-572-267-31	SWITCH, PUSH (AC POWER) (1 KEY)	
⚠T901	1-450-942-11	TRANSFORMER, POWER (E:120V)	
⚠T901	1-450-943-11	TRANSFORMER, POWER (E:220-230V)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
ELECTRICAL PARTS LIST

DISPLAY **KEY SW** **MAIN**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	1-641-321-11	DISPLAY BOARD *************	
		< CAPACITOR >	
C601	1-162-282-31	CERAMIC 100PF 10% 50V	
C602	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C603	1-162-282-31	CERAMIC 100PF 10% 50V	
C604	1-124-638-11	ELECT 22uF 20% 10V	
C605	1-161-379-00	CERAMIC 0.01uF 20% 25V	
C606	1-126-162-11	ELECT 3.3uF 20% 50V	
		< DIODE >	
D604	8-719-313-61	DIODE SEL4117R (DOLBY SURROUND)	
D605	8-719-313-61	DIODE SEL4117R (MIX)	
		< FILTER >	
FL601	1-519-700-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC601	8-759-045-48	IC M66004MIFP	
		< TRANSISTOR >	
Q601	8-729-900-63	TRANSISTOR DTA124ES	
Q602	8-729-900-63	TRANSISTOR DTA124ES	
		< RESISTOR >	
R608	1-249-412-11	CARBON 390 5% 1/4W	
R609	1-249-412-11	CARBON 390 5% 1/4W	
R610	1-249-434-11	CARBON 27K 5% 1/4W	
R611	1-249-417-11	CARBON 1K 5% 1/4W	
R612	1-249-417-11	CARBON 1K 5% 1/4W	
R613	1-249-417-11	CARBON 1K 5% 1/4W	

****

Ref. No.	Part No.	Description	Remark
*	1-641-320-11	KEY SW BOARD ************	
		< CONNECTOR >	
* CN651	1-568-850-11	SOCKET, CONNECTOR 7P	
		< DIODE >	
D601	8-719-301-49	LED SEL2810A (SURROUND MODE)	
D602	8-719-301-49	LED SEL2810A (PROLOGIC MODE)	
D603	8-719-301-49	LED SEL2810A (ACOUSTIC CONTROL)	
		< RESISTOR >	
R604	1-249-420-11	CARBON 1.8K 5% 1/4W	
R605	1-249-423-11	CARBON 3.3K 5% 1/4W	
R606	1-249-420-11	CARBON 1.8K 5% 1/4W	
R607	1-249-420-11	CARBON 1.8K 5% 1/4W	
		< SWITCH >	
S601	1-554-303-21	SWITCH, TACTILE (SURROUND MODE)	
S602	1-554-303-21	SWITCH, TACTILE (PROLOGIC MODE)	
S603	1-554-303-21	SWITCH, TACTILE (ACOUSTIC CONTROL)	
S604	1-554-303-21	SWITCH, TACTILE (>)	
S605	1-554-303-21	SWITCH, TACTILE (MIX)	
S606	1-554-303-21	SWITCH, TACTILE (<)	
S607	1-554-303-21	SWITCH, TACTILE (TEST TONE)	

****

Ref. No.	Part No.	Description	Remark
*	A-4345-822-A	MAIN BOARD, COMPLETE *******************	
*	1-533-213-31	HOLDER, FUSE	
*	3-309-144-21	HEAT SINK	
	7-682-548-04	SCREW +BVTT 3X8 (S)	

MAIN

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
⚠C001	1-161-744-00	CERAMIC	0.01uF		400V
C101	1-126-163-11	ELECT	4.7uF	20%	50V
C103	1-126-163-11	ELECT	4.7uF	20%	50V
C106	1-126-163-11	ELECT	4.7uF	20%	50V
C109	1-126-163-11	ELECT	4.7uF	20%	50V
C113	1-126-049-11	ELECT	22uF	20%	25V
C115	1-161-379-00	CERAMIC	0.01uF	20%	25V
C116	1-126-059-11	ELECT	10uF	20%	50V
C117	1-126-059-11	ELECT	10uF	20%	50V
C118	1-126-059-11	ELECT	10uF	20%	50V
C119	1-162-219-31	CERAMIC	68PF	5%	50V
C151	1-126-163-11	ELECT	4.7uF	20%	50V
C153	1-126-163-11	ELECT	4.7uF	20%	50V
C156	1-126-163-11	ELECT	4.7uF	20%	50V
C159	1-126-163-11	ELECT	4.7uF	20%	50V
C163	1-126-049-11	ELECT	22uF	20%	25V
C168	1-126-059-11	ELECT	10uF	20%	50V
C169	1-162-219-31	CERAMIC	68PF	5%	50V
C201	1-126-101-11	ELECT	100uF	20%	16V
C202	1-126-022-11	ELECT	47uF	20%	16V
C203	1-126-059-11	ELECT	10uF	20%	50V
C204	1-124-252-00	ELECT	0.33uF	20%	50V
C205	1-136-165-00	FILM	0.1uF	5%	50V
C206	1-136-165-00	FILM	0.1uF	5%	50V
C207	1-164-083-11	CERAMIC	680PF	10%	50V
C208	1-126-161-11	ELECT	2.2uF	20%	50V
C209	1-126-161-11	ELECT	2.2uF	20%	50V
C210	1-136-167-00	FILM	0.15uF	5%	50V
C211	1-126-162-11	ELECT	3.3uF	20%	50V
C212	1-136-167-00	FILM	0.15uF	5%	50V
C213	1-136-165-00	FILM	0.1uF	5%	50V
C214	1-164-083-11	CERAMIC	680PF	10%	50V
C215	1-130-483-00	MYLAR	0.01uF	5%	50V
C216	1-130-485-00	MYLAR	0.015uF	5%	50V
C217	1-126-059-11	ELECT	10uF	20%	50V
C218	1-126-059-11	ELECT	10uF	20%	50V
C219	1-126-059-11	ELECT	10uF	20%	50V
C220	1-126-300-11	ELECT	0.47uF	20%	50V
C221	1-124-463-00	ELECT	0.1uF	20%	50V
C222	1-126-049-11	ELECT	22uF	20%	25V
C223	1-164-070-11	CERAMIC	100PF	5%	50V
C224	1-126-049-11	ELECT	22uF	20%	25V
C225	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C226	1-126-049-11	ELECT	22uF	20%	25V
C227	1-161-379-00	CERAMIC	0.01uF	20%	25V
C228	1-161-379-00	CERAMIC	0.01uF	20%	25V
C229	1-126-049-11	ELECT	22uF	20%	25V
C230	1-126-101-11	ELECT	100uF	20%	16V
C253	1-126-059-11	ELECT	10uF	20%	50V
C254	1-124-252-00	ELECT	0.33uF	20%	50V
C255	1-136-165-00	FILM	0.1uF	5%	50V
C256	1-136-165-00	FILM	0.1uF	5%	50V
C257	1-164-083-11	CERAMIC	680PF	10%	50V
C258	1-126-161-11	ELECT	2.2uF	20%	50V
C259	1-126-161-11	ELECT	2.2uF	20%	50V
C260	1-136-167-00	FILM	0.15uF	5%	50V
C261	1-126-162-11	ELECT	3.3uF	20%	50V
C262	1-136-167-00	FILM	0.15uF	5%	50V
C263	1-126-023-11	ELECT	100uF	20%	16V
C264	1-164-159-11	CERAMIC	0.1uF		50V
C267	1-126-059-11	ELECT	10uF	20%	50V
C271	1-124-463-00	ELECT	0.1uF	20%	50V
C273	1-124-463-00	ELECT	0.1uF	20%	50V
C275	1-164-046-11	CERAMIC	10PF	0.5PF	50V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-126-059-11	ELECT	10uF	20%	50V
C304	1-164-159-11	CERAMIC	0.1uF		50V
C305	1-125-486-11	DOUBLE LAYERS	0.22F		5.5V
C306	1-136-169-00	FILM	0.22uF	5%	50V
C713	1-126-022-11	ELECT	47uF	20%	10V
C714	1-124-994-11	ELECT	100uF	20%	10V
C801	1-161-377-00	CERAMIC	0.0047uF	20%	50V
C802	1-161-377-00	CERAMIC	0.0047uF	20%	50V
C803	1-161-377-00	CERAMIC	0.0047uF	20%	50V
C804	1-161-377-00	CERAMIC	0.0047uF	20%	50V
C805	1-126-029-11	ELECT	3300uF	20%	25V
C806	1-126-029-11	ELECT	3300uF	20%	25V
C807	1-124-962-11	ELECT	2200uF	20%	25V
C808	1-124-920-11	ELECT	330uF	20%	50V
C809	1-124-994-11	ELECT	100uF	20%	10V
C810	1-124-994-11	ELECT	100uF	20%	10V
C812	1-126-024-11	ELECT	220uF	20%	16V
C813	1-124-587-11	ELECT	220uF	20%	6.3V
C814	1-124-994-11	ELECT	100uF	20%	10V
C815	1-124-587-11	ELECT	220uF	20%	6.3V
C816	1-136-159-00	FILM	0.033uF	5%	50V
C817	1-126-059-11	ELECT	10uF	20%	50V
C818	1-124-122-11	ELECT	100uF	20%	50V
C819	1-126-161-11	ELECT	2.2uF	20%	50V
C820	1-126-059-11	ELECT	10uF	20%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
* CN001	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P	
* CN002	1-564-321-00	PIN, CONNECTOR 2P	
* CN003	1-564-321-21	PIN, CONNECTOR 2P	
* CN101	1-564-506-11	PLUG, CONNECTOR 3P	
* CN102	1-691-004-31	PLUG, CONNECTOR (PC BOARD) 13P (SYSTEM CONTROL 3)	
* CN401	1-568-828-11	SOCKET, CONNECTOR 9P	
* CN402	1-568-830-11	SOCKET, CONNECTOR 11P	
* CN501	1-568-828-11	SOCKET, CONNECTOR 9P	
* CN601	1-568-826-11	SOCKET, CONNECTOR 7P	
* CN602	1-568-828-11	SOCKET, CONNECTOR 9P	
* CN801	1-564-242-00	PIN, CONNECTOR 5P	
* CN802	1-564-242-00	PIN, CONNECTOR 5P	
		< JACK >	
⚠CNJ001	1-540-038-11	OUTLET, AC (NONPOLAR)(1P)	
		< DIODE >	
D301	8-719-987-63	DIODE 1N4148M	
D302	8-719-987-63	DIODE 1N4148M	
D303	8-719-000-81	DIODE UZL-7L3	
D304	8-719-000-81	DIODE UZL-7L3	
D305	8-719-987-63	DIODE 1N4148M	
D306	8-719-987-63	DIODE 1N4148M	
D307	8-719-987-63	DIODE 1N4148M	
D701	8-719-987-63	DIODE 1N4148M	
D702	8-719-987-63	DIODE 1N4148M	
D703	8-719-987-63	DIODE 1N4148M	
D704	8-719-987-63	DIODE 1N4148M	
D753	8-719-987-63	DIODE 1N4148M	
D801	8-719-312-09	DIODE RBA-402	
D805	8-719-200-02	DIODE 10E2	
D806	8-719-200-02	DIODE 10E2	
D807	8-719-200-02	DIODE 10E2	
D808	8-719-200-02	DIODE 10E2	
D809	8-719-200-02	DIODE 10E2	
D810	8-719-200-02	DIODE 10E2	
D811	8-719-200-02	DIODE 10E2	
D812	8-719-200-02	DIODE 10E2	
D813	8-719-987-63	DIODE 1N4148M	
D814	8-719-987-63	DIODE 1N4148M	
D815	8-719-987-63	DIODE 1N4148M	
D816	8-719-987-63	DIODE 1N4148M	
D817	8-719-002-60	DIODE UZL-33L	
D818	8-719-014-88	DIODE UZP-6.8BC	
D819	8-719-200-02	DIODE 10E2	

Ref. No.	Part No.	Description	Remark
		< FUSE >	
⚠F801	1-532-782-11	FUSE, MICRO (SECONDARY)(4A)	
		< IC >	
IC101	8-759-047-14	IC CXD8200Q	
IC102	8-759-634-51	IC M5218AP	
IC201	8-759-047-15	IC LA2780	
IC202	8-759-824-12	IC LC7536	
IC203	8-759-634-51	IC M5218AP	
IC204	8-759-824-12	IC LC7536	
IC205	8-759-634-51	IC M5218AP	
IC206	8-759-634-51	IC M5218AP	
IC207	8-759-801-01	IC LC4966	
IC301	8-759-047-16	IC uPD75108CW-C87	
IC801	8-759-604-86	IC M5F7807L	
IC802	8-759-604-90	IC M5F7907L	
IC803	8-759-231-58	IC TA7812S	
IC804	8-759-231-53	IC TA7805S	
IC805	8-759-635-63	IC M51943BSL	
		< JACK >	
J101	1-568-529-21	JACK, PIN 4P (BS/LD AUDIO)	
J102	1-568-529-21	JACK, PIN 4P (VIDEO 1 AUDIO IN/OUT)	
J103	1-568-529-21	JACK, PIN 4P (VIDEO 2 AUDIO IN/OUT)	
J201	1-565-352-51	JACK, PIN 2P (CENTER OUT)	
		< COIL >	
L701	1-420-872-00	COIL, AIR CORE	
L751	1-420-872-00	COIL, AIR CORE	
		< TRANSISTOR >	
Q201	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q202	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q203	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q204	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q205	8-729-900-36	TRANSISTOR DTC124ES	
Q206	8-729-900-63	TRANSISTOR DTA124ES	
Q251	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q301	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q302	8-729-900-63	TRANSISTOR DTA124ES	
Q303	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q304	8-729-900-63	TRANSISTOR DTA124ES	
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q702	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q703	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q705	8-729-904-39	TRANSISTOR DTC114TS	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MAIN

Ref. No.	Part No.	Description	Remark
Q755	8-729-904-39	TRANSISTOR DTC114TS	
Q801	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF	
		< RESISTOR >	
R101	1-249-417-11	CARBON 1K 5% 1/4W	
R102	1-247-903-00	CARBON 1M 5% 1/4W	
R103	1-249-417-11	CARBON 1K 5% 1/4W	
R104	1-247-903-00	CARBON 1M 5% 1/4W	
R105	1-249-413-11	CARBON 470 5% 1/4W	
R106	1-247-903-00	CARBON 1M 5% 1/4W	
R107	1-249-417-11	CARBON 1K 5% 1/4W	
R108	1-247-903-00	CARBON 1M 5% 1/4W	
R109	1-249-413-11	CARBON 470 5% 1/4W	
R110	1-247-903-00	CARBON 1M 5% 1/4W	
R111	1-249-417-11	CARBON 1K 5% 1/4W	
R112	1-247-903-00	CARBON 1M 5% 1/4W	
R115	1-249-413-11	CARBON 470 5% 1/4W	
R116	1-249-413-11	CARBON 470 5% 1/4W	
R117	1-247-903-00	CARBON 1M 5% 1/4W	
R119	1-249-441-11	CARBON 100K 5% 1/4W	
R120	1-249-441-11	CARBON 100K 5% 1/4W	
R151	1-249-417-11	CARBON 1K 5% 1/4W	
R152	1-247-903-00	CARBON 1M 5% 1/4W	
R153	1-249-417-11	CARBON 1K 5% 1/4W	
R154	1-247-903-00	CARBON 1M 5% 1/4W	
R155	1-249-413-11	CARBON 470 5% 1/4W	
R156	1-247-903-00	CARBON 1M 5% 1/4W	
R157	1-249-417-11	CARBON 1K 5% 1/4W	
R158	1-247-903-00	CARBON 1M 5% 1/4W	
R159	1-249-413-11	CARBON 470 5% 1/4W	
R160	1-247-903-00	CARBON 1M 5% 1/4W	
R161	1-249-417-11	CARBON 1K 5% 1/4W	
R162	1-247-903-00	CARBON 1M 5% 1/4W	
R165	1-249-413-11	CARBON 470 5% 1/4W	
R166	1-249-413-11	CARBON 470 5% 1/4W	
R167	1-247-903-00	CARBON 1M 5% 1/4W	
R170	1-249-441-11	CARBON 100K 5% 1/4W	
R201	1-249-429-11	CARBON 10K 5% 1/4W	
R202	1-249-429-11	CARBON 10K 5% 1/4W	
R203	1-249-417-11	CARBON 1K 5% 1/4W	
R204	1-249-417-11	CARBON 1K 5% 1/4W	
R205	1-249-417-11	CARBON 1K 5% 1/4W	
R206	1-249-417-11	CARBON 1K 5% 1/4W	
R207	1-247-838-00	CARBON 2K 5% 1/4W	
R208	1-249-431-11	CARBON 15K 5% 1/4W	
R209	1-247-852-11	CARBON 7.5K 5% 1/4W	
R210	1-249-437-11	CARBON 47K 5% 1/4W	
R211	1-249-433-11	CARBON 22K 5% 1/4W	
R212	1-249-433-11	CARBON 22K 5% 1/4W	
R213	1-247-717-11	CARBON 2.2K 5% 1/4W	
R214	1-249-425-11	CARBON 4.7K 5% 1/4W	
R215	1-249-433-11	CARBON 22K 5% 1/4W	
R216	1-249-441-11	CARBON 100K 5% 1/4W	
R217	1-249-435-11	CARBON 33K 5% 1/4W	
R218	1-249-418-11	CARBON 1.2K 5% 1/4W	
R219	1-249-417-11	CARBON 1K 5% 1/4W	
R220	1-249-441-11	CARBON 100K 5% 1/4W	
R221	1-249-429-11	CARBON 10K 5% 1/4W	
R222	1-249-429-11	CARBON 10K 5% 1/4W	
R223	1-249-433-11	CARBON 22K 5% 1/4W	
R224	1-249-433-11	CARBON 22K 5% 1/4W	
R225	1-249-433-11	CARBON 22K 5% 1/4W	
R226	1-249-425-11	CARBON 4.7K 5% 1/4W	
R227	1-249-423-11	CARBON 3.3K 5% 1/4W	
R229	1-249-413-11	CARBON 470 5% 1/4W	
R230	1-249-413-11	CARBON 470 5% 1/4W	
R231	1-249-417-11	CARBON 1K 5% 1/4W	
R232	1-249-433-11	CARBON 22K 5% 1/4W	
R233	1-249-433-11	CARBON 22K 5% 1/4W	
R257	1-247-838-00	CARBON 2K 5% 1/4W	
R258	1-249-431-11	CARBON 15K 5% 1/4W	
R259	1-247-852-11	CARBON 7.5K 5% 1/4W	
R260	1-249-437-11	CARBON 47K 5% 1/4W	
R263	1-247-717-11	CARBON 2.2K 5% 1/4W	
R264	1-249-425-11	CARBON 4.7K 5% 1/4W	
R270	1-249-441-11	CARBON 100K 5% 1/4W	
R271	1-249-429-11	CARBON 10K 5% 1/4W	
R272	1-249-429-11	CARBON 10K 5% 1/4W	
R279	1-249-413-11	CARBON 470 5% 1/4W	
R282	1-249-433-11	CARBON 22K 5% 1/4W	
R301	1-249-417-11	CARBON 1K 5% 1/4W	
R302	1-249-417-11	CARBON 1K 5% 1/4W	
R303	1-249-429-11	CARBON 10K 5% 1/4W	
R304	1-249-433-11	CARBON 22K 5% 1/4W	
R305	1-249-423-11	CARBON 3.3K 5% 1/4W	
R306	1-249-423-11	CARBON 3.3K 5% 1/4W	
R307	1-249-423-11	CARBON 3.3K 5% 1/4W	
R310	1-249-421-11	CARBON 2.2K 5% 1/4W	
R311	1-249-425-11	CARBON 4.7K 5% 1/4W	
R312	1-249-421-11	CARBON 2.2K 5% 1/4W	
R313	1-249-421-11	CARBON 2.2K 5% 1/4W	
R314	1-249-417-11	CARBON 1K 5% 1/4W	
R315	1-249-417-11	CARBON 1K 5% 1/4W	
R316	1-249-417-11	CARBON 1K 5% 1/4W	

Ref. No.	Part No.	Description				Remark
R317	1-249-417-11	CARBON	1K	5%	1/4W	
R318	1-249-417-11	CARBON	1K	5%	1/4W	
R319	1-249-417-11	CARBON	1K	5%	1/4W	
R320	1-249-433-11	CARBON	22K	5%	1/4W	
R321	1-249-417-11	CARBON	1K	5%	1/4W	
R322	1-249-417-11	CARBON	1K	5%	1/4W	
R323	1-249-417-11	CARBON	1K	5%	1/4W	
R324	1-249-417-11	CARBON	1K	5%	1/4W	
R325	1-249-417-11	CARBON	1K	5%	1/4W	
R326	1-249-417-11	CARBON	1K	5%	1/4W	
R327	1-249-417-11	CARBON	1K	5%	1/4W	
R328	1-249-417-11	CARBON	1K	5%	1/4W	
R329	1-249-417-11	CARBON	1K	5%	1/4W	
R330	1-249-417-11	CARBON	1K	5%	1/4W	
R331	1-249-417-11	CARBON	1K	5%	1/4W	
R332	1-249-417-11	CARBON	1K	5%	1/4W	
R333	1-249-417-11	CARBON	1K	5%	1/4W	
R334	1-249-417-11	CARBON	1K	5%	1/4W	
R335	1-249-409-11	CARBON	220	5%	1/4W	
R336	1-249-409-11	CARBON	220	5%	1/4W	
R337	1-249-409-11	CARBON	220	5%	1/4W	
R338	1-249-417-11	CARBON	1K	5%	1/4W	
R339	1-249-429-11	CARBON	10K	5%	1/4W	
R340	1-249-433-11	CARBON	22K	5%	1/4W	
R341	1-249-413-11	CARBON	470	5%	1/4W	
R342	1-249-429-11	CARBON	10K	5%	1/4W	
R343	1-249-433-11	CARBON	22K	5%	1/4W	
R701	1-249-417-11	CARBON	1K	5%	1/4W	
R706	1-249-437-11	CARBON	47K	5%	1/4W	
R708	1-249-393-11	CARBON	10	5%	1/4W	
R717	1-249-421-11	CARBON	2.2K	5%	1/4W	
R718	1-249-421-11	CARBON	2.2K	5%	1/4W	
R751	1-249-417-11	CARBON	1K	5%	1/4W	
R756	1-249-438-11	CARBON	56K	5%	1/4W	
R758	1-249-393-11	CARBON	10	5%	1/4W	
⚠R759	1-216-431-11	METAL OXIDE	560	5%	1W	F
R760	1-249-433-11	CARBON	22K	5%	1/4W	
R761	1-249-429-11	CARBON	10K	5%	1/4W	
R762	1-249-389-11	CARBON	4.7	5%	1/4W	
R763	1-249-438-11	CARBON	56K	5%	1/4W	
R764	1-249-441-11	CARBON	100K	5%	1/4W	
R765	1-249-435-11	CARBON	33K	5%	1/4W	
R766	1-249-429-11	CARBON	10K	5%	1/4W	
R767	1-249-421-11	CARBON	2.2K	5%	1/4W	
R768	1-249-421-11	CARBON	2.2K	5%	1/4W	
⚠R801	1-212-934-00	FUSIBLE	1	5%	1/2W	F
R802	1-249-422-11	CARBON	2.7K	5%	1/4W	
R803	1-249-429-11	CARBON	10K	5%	1/4W	
R804	1-249-429-11	CARBON	10K	5%	1/4W	
R806	1-249-441-11	CARBON	100K	5%	1/4W	
R807	1-249-437-11	CARBON	47K	5%	1/4W	

< RELAY >

Ref. No.	Part No.	Description	Remark
RY701	1-515-533-11	RELAY	

< TERMINAL >

Ref. No.	Part No.	Description	Remark
TB701	1-537-240-11	TERMINAL BOARD (CHECKER PIN) (SURROUND SPEAKER TERMINAL)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X301	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)	

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* 1-641-319-11 POWER AMP BOARD

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< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C701	1-126-059-11	ELECT	10uF	20%	50V	
C702	1-162-282-31	CERAMIC	100PF	10%	50V	
C703	1-162-282-31	CERAMIC	100PF	10%	50V	
C704	1-126-049-11	ELECT	22uF	20%	25V	
C705	1-136-165-00	FILM	0.1uF	5%	50V	
C706	1-136-165-00	FILM	0.1uF	5%	50V	
C707	1-136-165-00	FILM	0.1uF	5%	50V	
C708	1-136-165-00	FILM	0.1uF	5%	50V	
C709	1-136-163-00	FILM	0.068uF	5%	50V	
C710	1-136-163-00	FILM	0.068uF	5%	50V	
C751	1-126-059-11	ELECT	10uF	20%	50V	
C752	1-162-282-31	CERAMIC	100PF	10%	50V	
C753	1-162-282-31	CERAMIC	100PF	10%	50V	
C754	1-126-049-11	ELECT	22uF	20%	25V	
C759	1-136-163-00	FILM	0.068uF	5%	50V	
C760	1-136-163-00	FILM	0.068uF	5%	50V	

< IC >

Ref. No.	Part No.	Description		Remark
IC701	8-759-502-32	IC	SI18752N	
IC751	8-759-502-32	IC	SI18752N	

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R702	1-249-417-11	CARBON	1K	5%	1/4W	
R703	1-249-434-11	CARBON	27K	5%	1/4W	
R704	1-249-417-11	CARBON	1K	5%	1/4W	
R705	1-249-434-11	CARBON	27K	5%	1/4W	
R707	1-249-393-11	CARBON	10	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

POWER AMP SURROUND

Ref. No.	Part No.	Description			Remark
R752	1-249-417-11	CARBON	1K	5%	1/4W
R753	1-249-434-11	CARBON	27K	5%	1/4W
R754	1-249-417-11	CARBON	1K	5%	1/4W
R755	1-249-434-11	CARBON	27K	5%	1/4W
R757	1-249-393-11	CARBON	10	5%	1/4W

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* A-4345-829-A SURROUND BOARD, COMPLETE

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* 4-948-457-01 HOLDER (CD), FL

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C401	1-164-070-11	CERAMIC	100PF	5%	50V
C402	1-164-070-11	CERAMIC	100PF	5%	50V
C403	1-126-049-11	ELECT	22uF	20%	25V
C404	1-126-049-11	ELECT	22uF	20%	25V
C405	1-126-059-11	ELECT	10uF	20%	50V
C406	1-126-059-11	ELECT	10uF	20%	50V
C407	1-106-353-00	MYLAR	0.0027uF	5%	50V
C408	1-106-363-00	MYLAR	6800PF	5%	200V
C409	1-164-080-11	CERAMIC	390PF	10%	50V
C410	1-126-301-11	ELECT	1uF	20%	50V
C411	1-126-301-11	ELECT	1uF	20%	50V
C412	1-126-301-11	ELECT	1uF	20%	50V
C413	1-126-161-11	ELECT	2.2uF	20%	50V
C414	1-126-049-11	ELECT	22uF	20%	25V
C415	1-126-301-11	ELECT	1uF	20%	50V
C417	1-106-353-00	MYLAR	0.0027uF	5%	50V
C418	1-106-363-00	MYLAR	6800PF	5%	200V
C419	1-164-080-11	CERAMIC	390PF	10%	50V
C420	1-126-163-11	ELECT	4.7uF	20%	50V
C421	1-126-059-11	ELECT	10uF	20%	50V
C422	1-130-478-00	MYLAR	0.0039uF	5%	50V
C423	1-126-022-11	ELECT	47uF	20%	16V
C424	1-136-165-00	FILM	0.1uF	5%	50V
C425	1-164-058-11	CERAMIC	33PF	5%	50V
C426	1-126-301-11	ELECT	1uF	20%	50V
C427	1-126-161-11	ELECT	2.2uF	20%	50V
C428	1-164-070-11	CERAMIC	100PF	5%	50V
C429	1-126-301-11	ELECT	1uF	20%	50V
C430	1-126-022-11	ELECT	47uF	20%	16V
C431	1-130-483-00	MYLAR	0.01uF	5%	50V
C432	1-130-482-00	MYLAR	0.0082uF	5%	50V
C433	1-164-079-11	CERAMIC	330PF	10%	50V
C434	1-126-049-11	ELECT	22uF	20%	25V
C435	1-126-059-11	ELECT	10uF	20%	50V
C436	1-136-169-00	FILM	0.22uF	5%	50V
C437	1-164-070-11	CERAMIC	100PF	5%	50V
C451	1-126-301-11	ELECT	1uF	20%	50V
C452	1-126-301-11	ELECT	1uF	20%	50V
C453	1-130-482-00	MYLAR	0.0082uF	5%	50V
C454	1-124-994-11	ELECT	100uF	20%	10V
C455	1-126-049-11	ELECT	22uF	20%	25V
C456	1-106-359-00	MYLAR	4700PF	5%	200V
C457	1-130-488-00	MYLAR	0.027uF	5%	50V
C458	1-126-301-11	ELECT	1uF	20%	50V
C459	1-136-159-00	FILM	0.033uF	5%	50V
C460	1-136-165-00	FILM	0.1uF	5%	50V
C461	1-136-171-00	FILM	0.33uF	5%	50V
C462	1-126-023-11	ELECT	100uF	20%	16V
C463	1-126-301-11	ELECT	1uF	20%	50V
C464	1-126-059-11	ELECT	10uF	20%	50V
C465	1-126-059-11	ELECT	10uF	20%	50V
C466	1-106-351-00	MYLAR	2200PF	5%	200V
C467	1-126-059-11	ELECT	10uF	20%	50V
C475	1-164-058-11	CERAMIC	33PF	5%	50V
C476	1-126-301-11	ELECT	1uF	20%	50V
C477	1-126-161-11	ELECT	2.2uF	20%	50V
C478	1-164-070-11	CERAMIC	100PF	5%	50V
C479	1-126-301-11	ELECT	1uF	20%	50V
C481	1-130-483-00	MYLAR	0.01uF	5%	50V
C482	1-130-482-00	MYLAR	0.0082uF	5%	50V
C483	1-164-079-11	CERAMIC	330PF	10%	50V
C484	1-126-049-11	ELECT	22uF	20%	25V
C485	1-126-059-11	ELECT	10uF	20%	50V
C486	1-136-169-00	FILM	0.22uF	5%	50V
C487	1-126-163-11	ELECT	4.7uF	20%	50V
C811	1-124-994-11	ELECT	100uF	20%	10V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN451	1-568-828-11	SOCKET, CONNECTOR 9P
* CN452	1-568-830-11	SOCKET, CONNECTOR 11P
* CN652	1-568-852-11	SOCKET, CONNECTOR 9P

< DIODE >

Ref. No.	Part No.	Description	
D401	8-719-987-63	DIODE	1N4148M
D802	8-719-987-63	DIODE	1N4148M
D803	8-719-987-63	DIODE	1N4148M
D804	8-719-987-63	DIODE	1N4148M

< IC >

Ref. No.	Part No.	Description	
IC401	8-759-634-51	IC	M5218AP
IC402	8-759-801-01	IC	LC4966
IC403	8-759-634-51	IC	M5218AP
IC404	8-759-514-77	IC	NE571N-A
IC405	8-759-503-59	IC	YM7128

SURROUND

Ref. No.	Part No.	Description	Remark
IC406	8-759-634-51	IC M5218AP	
IC407	8-759-514-77	IC NE571N-A	
IC408	8-759-634-51	IC M5218AP	
IC409	8-759-823-25	IC LA2730K	
IC410	8-759-634-51	IC M5218AP	
IC411	8-759-801-01	IC LC4966	
IC412	8-759-801-01	IC LC4966	
		< COIL >	
L401	1-410-509-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q401	8-729-900-63	TRANSISTOR DTA124ES	
Q402	8-729-900-36	TRANSISTOR DTC124ES	
Q403	8-729-900-63	TRANSISTOR DTA124ES	
Q404	8-729-900-36	TRANSISTOR DTC124ES	
Q405	8-729-900-63	TRANSISTOR DTA124ES	
Q406	8-729-900-63	TRANSISTOR DTA124ES	
Q407	8-729-900-36	TRANSISTOR DTC124ES	
		< RESISTOR >	
R401	1-249-429-11	CARBON 10K 5% 1/4W	
R402	1-249-429-11	CARBON 10K 5% 1/4W	
R403	1-249-429-11	CARBON 10K 5% 1/4W	
R404	1-249-429-11	CARBON 10K 5% 1/4W	
R405	1-249-429-11	CARBON 10K 5% 1/4W	
R406	1-249-429-11	CARBON 10K 5% 1/4W	
R407	1-249-433-11	CARBON 22K 5% 1/4W	
R408	1-249-429-11	CARBON 10K 5% 1/4W	
R409	1-249-429-11	CARBON 10K 5% 1/4W	
R410	1-249-441-11	CARBON 100K 5% 1/4W	
R411	1-249-441-11	CARBON 100K 5% 1/4W	
R412	1-249-433-11	CARBON 22K 5% 1/4W	
R413	1-249-433-11	CARBON 22K 5% 1/4W	
R414	1-249-431-11	CARBON 15K 5% 1/4W	
R415	1-249-429-11	CARBON 10K 5% 1/4W	
R416	1-249-434-11	CARBON 27K 5% 1/4W	
R417	1-249-429-11	CARBON 10K 5% 1/4W	
R418	1-247-903-00	CARBON 1M 5% 1/4W	
R419	1-247-887-00	CARBON 220K 5% 1/4W	
R420	1-249-417-11	CARBON 1K 5% 1/4W	
R421	1-249-435-11	CARBON 33K 5% 1/4W	
R422	1-249-435-11	CARBON 33K 5% 1/4W	
R423	1-249-429-11	CARBON 10K 5% 1/4W	
R424	1-249-429-11	CARBON 10K 5% 1/4W	
R425	1-249-441-11	CARBON 100K 5% 1/4W	
R426	1-249-429-11	CARBON 10K 5% 1/4W	
R427	1-249-437-11	CARBON 47K 5% 1/4W	
R428	1-249-426-11	CARBON 5.6K 5% 1/4W	
R429	1-249-417-11	CARBON 1K 5% 1/4W	
R430	1-249-417-11	CARBON 1K 5% 1/4W	
R431	1-249-417-11	CARBON 1K 5% 1/4W	
R432	1-247-903-00	CARBON 1M 5% 1/4W	
R433	1-249-417-11	CARBON 1K 5% 1/4W	
R434	1-247-887-00	CARBON 220K 5% 1/4W	
R435	1-249-429-11	CARBON 10K 5% 1/4W	
R436	1-249-417-11	CARBON 1K 5% 1/4W	
R437	1-249-428-11	CARBON 8.2K 5% 1/4W	
R438	1-249-426-11	CARBON 5.6K 5% 1/4W	
R439	1-249-435-11	CARBON 33K 5% 1/4W	
R440	1-247-903-00	CARBON 1M 5% 1/4W	
R441	1-249-421-11	CARBON 2.2K 5% 1/4W	
R442	1-249-423-11	CARBON 3.3K 5% 1/4W	
R443	1-249-425-11	CARBON 4.7K 5% 1/4W	
R444	1-249-421-11	CARBON 2.2K 5% 1/4W	
R451	1-249-433-11	CARBON 22K 5% 1/4W	
R452	1-249-429-11	CARBON 10K 5% 1/4W	
R453	1-249-431-11	CARBON 15K 5% 1/4W	
R454	1-249-434-11	CARBON 27K 5% 1/4W	
R455	1-249-408-11	CARBON 180 5% 1/4W	
R456	1-249-430-11	CARBON 12K 5% 1/4W	
R457	1-249-423-11	CARBON 3.3K 5% 1/4W	
R458	1-247-889-00	CARBON 270K 5% 1/4W	
R459	1-249-437-11	CARBON 47K 5% 1/4W	
R460	1-247-850-11	CARBON 6.2K 5% 1/4W	
R461	1-247-889-00	CARBON 270K 5% 1/4W	
R462	1-249-433-11	CARBON 22K 5% 1/4W	
R463	1-249-435-11	CARBON 33K 5% 1/4W	
R464	1-249-432-11	CARBON 18K 5% 1/4W	
R465	1-249-429-11	CARBON 10K 5% 1/4W	
R466	1-249-435-11	CARBON 33K 5% 1/4W	
R467	1-249-429-11	CARBON 10K 5% 1/4W	
R468	1-249-421-11	CARBON 2.2K 5% 1/4W	
R471	1-249-441-11	CARBON 100K 5% 1/4W	
R472	1-249-433-11	CARBON 22K 5% 1/4W	
R473	1-249-441-11	CARBON 100K 5% 1/4W	
R474	1-249-433-11	CARBON 22K 5% 1/4W	
R475	1-247-903-00	CARBON 1M 5% 1/4W	
R483	1-249-417-11	CARBON 1K 5% 1/4W	
R484	1-247-887-00	CARBON 220K 5% 1/4W	
R485	1-249-429-11	CARBON 10K 5% 1/4W	
R486	1-249-417-11	CARBON 1K 5% 1/4W	
R487	1-249-428-11	CARBON 8.2K 5% 1/4W	
R488	1-249-426-11	CARBON 5.6K 5% 1/4W	
R489	1-249-435-11	CARBON 33K 5% 1/4W	
R490	1-247-903-00	CARBON 1M 5% 1/4W	
R491	1-249-421-11	CARBON 2.2K 5% 1/4W	

SURROUND | VIDEO (3) | VIDEO FUNCTION

Ref. No.	Part No.	Description			Remark
R492	1-249-423-11	CARBON	3.3K	5%	1/4W
R493	1-249-425-11	CARBON	4.7K	5%	1/4W
R494	1-249-421-11	CARBON	2.2K	5%	1/4W
R495	1-247-903-00	CARBON	1M	5%	1/4W
		< VIBRATOR >			
X401	1-579-124-11	VIBRATOR, CERAMIC (7.7MHz)			

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*	1-641-322-11	VIDEO (3) BOARD ***************			
		< CAPACITOR >			
C111	1-126-163-11	ELECT	4.7uF	20%	50V
C161	1-126-163-11	ELECT	4.7uF	20%	50V
C508	1-126-059-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
* CN151	1-564-506-11	PLUG, CONNECTOR 3P			
* CN502	1-564-505-11	PLUG, CONNECTOR 2P			
		< JACK >			
J104	1-580-174-21	JACK, PIN(3P FRONT) (VIDEO 3 VIDEO/AUDIO)			
		< RESISTOR >			
R113	1-249-417-11	CARBON	1K	5%	1/4W
R114	1-247-903-00	CARBON	1M	5%	1/4W
R163	1-249-417-11	CARBON	1K	5%	1/4W
R164	1-247-903-00	CARBON	1M	5%	1/4W
R523	1-247-804-11	CARBON	75	5%	1/4W

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*	1-641-318-11	VIDEO FUNCTION BOARD ********************			
		< CAPACITOR >			
C501	1-126-059-11	ELECT	10uF	20%	50V
C502	1-126-059-11	ELECT	10uF	20%	50V
C503	1-124-471-00	ELECT	1000uF	20%	6.3V
C504	1-126-059-11	ELECT	10uF	20%	50V
C505	1-124-471-00	ELECT	1000uF	20%	6.3V
C506	1-126-059-11	ELECT	10uF	20%	50V
C507	1-124-471-00	ELECT	1000uF	20%	6.3V
C509	1-161-379-00	CERAMIC	0.01uF	20%	25V
C510	1-124-443-00	ELECT	100uF	20%	10V
C511	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
* CN551	1-568-828-11	SOCKET, CONNECTOR 9P			
* CN552	1-564-505-11	PLUG, CONNECTOR 2P			
		< IC >			
IC501	8-759-991-77	IC BA7625			
		< JACK >			
* J501	1-565-352-81	JACK, PIN 2P (BS/LD VIDEO IN)			
* J502	1-565-352-81	JACK, PIN 2P (VIDEO 1 VIDEO IN/OUT)			
* J503	1-691-005-11	JACK, PIN 3P (VIDEO 2 VIDEO IN/OUT, MONITOR OUT)			
		< COIL >			
L501	1-410-521-11	INDUCTOR 100uH			
		< TRANSISTOR >			
Q501	8-729-119-77	TRANSISTOR 2SA1175-FEK			
Q502	8-729-119-77	TRANSISTOR 2SA1175-FEK			
Q503	8-729-119-77	TRANSISTOR 2SA1175-FEK			
Q504	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q505	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q506	8-729-119-76	TRANSISTOR 2SA1175-HFE			
		< RESISTOR >			
R501	1-247-804-11	CARBON	75	5%	1/4W
R502	1-247-804-11	CARBON	75	5%	1/4W
R503	1-247-804-11	CARBON	75	5%	1/4W
R504	1-249-417-11	CARBON	1K	5%	1/4W
R505	1-247-804-11	CARBON	75	5%	1/4W
R506	1-247-804-11	CARBON	75	5%	1/4W
R507	1-249-417-11	CARBON	1K	5%	1/4W
R508	1-247-804-11	CARBON	75	5%	1/4W
R509	1-247-804-11	CARBON	75	5%	1/4W
R510	1-249-417-11	CARBON	1K	5%	1/4W
R511	1-249-408-11	CARBON	180	5%	1/4W
R512	1-249-408-11	CARBON	180	5%	1/4W
R513	1-249-408-11	CARBON	180	5%	1/4W
R514	1-249-413-11	CARBON	470	5%	1/4W
R515	1-249-413-11	CARBON	470	5%	1/4W
R516	1-249-413-11	CARBON	470	5%	1/4W
R517	1-249-417-11	CARBON	1K	5%	1/4W
R518	1-249-417-11	CARBON	1K	5%	1/4W
R519	1-249-417-11	CARBON	1K	5%	1/4W
R520	1-249-417-11	CARBON	1K	5%	1/4W
R521	1-249-417-11	CARBON	1K	5%	1/4W
R522	1-249-417-11	CARBON	1K	5%	1/4W

MISCELLANEOUS

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Ref. No.	Part No.	Description	Remark
12	1-590-240-31	WIRE, FLAT TYPE (9 CORE)	
14	1-590-239-31	WIRE, FLAT TYPE (7 CORE)	
53	1-590-575-31	WIRE, FLAT TYPE (11 CORE)	
54	1-590-240-31	WIRE, FLAT TYPE (9 CORE)	
⚠59	1-575-656-21	CORD, POWER	
61	1-575-905-31	WIRE, FLAT TYPE (9 CORE)	
⚠F001	1-532-215-00	FUSE (0.8A TIME LAG)(E:220-230V)	
⚠F001	1-532-259-00	FUSE (1.6A TIME LAG)(E:120V)	
⚠S001	1-572-267-31	SWITCH, PUSH (AC POWER)(1 KEY)	
⚠T901	1-450-942-11	TRANSFORMER, POWER (E:120V)	
⚠T901	1-450-943-11	TRANSFORMER, POWER (E:220-230V)	

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ACCESSORIES & PACKING MATERIALS

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Ref. No.	Part No.	Description	Remark
*	4-948-202-01	CUSHION	

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HARDWARE LIST

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Ref. No.	Part No.	Description	Remark
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-682-551-09	SCREW +BVTT 3X14 (S)	
#3	7-621-849-00	SCREW (BV/RING)	
#4	7-682-548-04	SCREW +BVTT 3X8 (S)	
#5	7-682-547-04	SCREW +BVTT 3X6 (S)	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

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